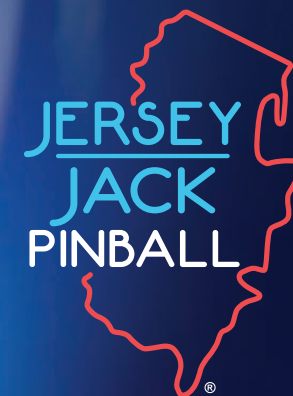


June 2017  
70-000003-00



# DIALED IN!



## Operations Manual Includes:

Game Setup - Testing & Adjustments - Parts Information - Reference Diagrams & Schematics - Service & Troubleshooting

Jersey Jack Pinball®, 1645 Oak Street, Lakewood, New Jersey 08701 Telephone: (732) 364-9900







## Manual Release 1.0

Information current at time of release.

Visit our customer support website, [www.support.jerseyjackpinball.com](http://www.support.jerseyjackpinball.com), and register your game.  
Be sure to include the game serial number. For your records, write the game serial number in the manual.

Serial Number \_\_\_\_\_

Jersey Jack Pinball® reserves the rights to make modifications and improvements to its products.  
The specifications and parts identified in this manual are subject to change without notice.





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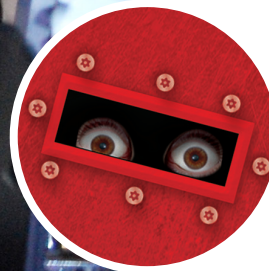
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# Section A

## Game Assembly & Setup



# A.1 Unpacking Your Dialed In Game

1) Using wire cutters, remove all shipping bands from the outside of the carton, noting the side with the “TRUCK THIS SIDE ONLY” marking (see figure A1). With a utility knife and needle-nose pliers, carefully cut the tape and remove all staples along the seams of the carton’s top flaps, then fold them open (see figure A2). Remove the large, flat sheet of cardboard. Pull out the large parts box (red in figure A2) and remove its contents. Check all loose parts against the packing list on this page.

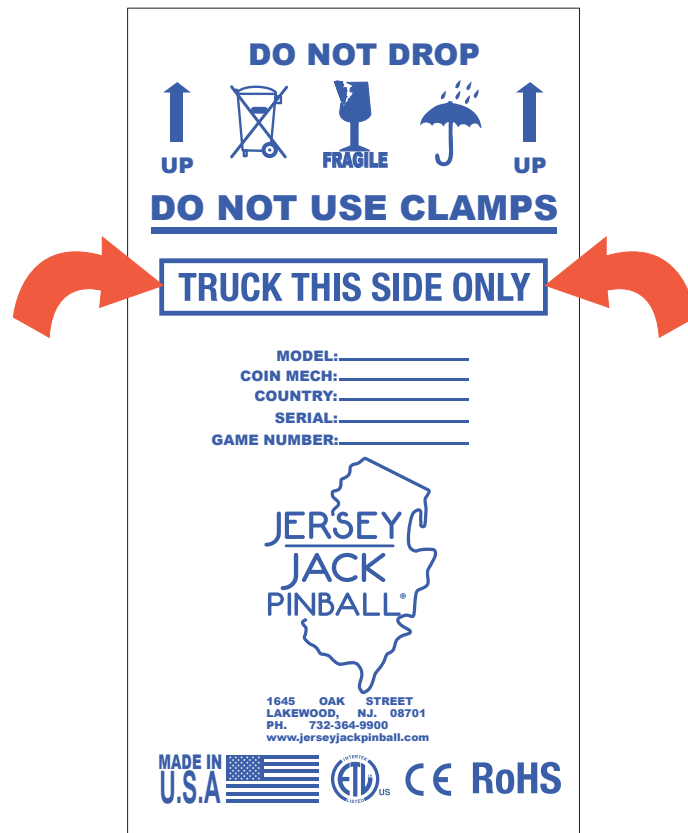


Figure A1. The “TRUCK THIS SIDE ONLY” side of the box.

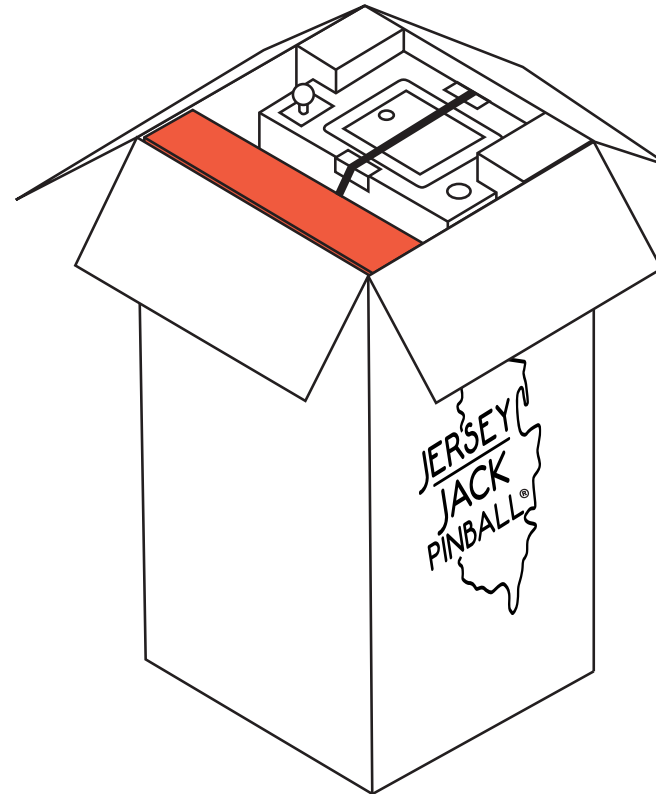


Figure A2. Opening the shipping carton.

## Tools Required:

Wire cutters  
Needle-nose pliers  
Utility knife  
Ratchet and 5/8” socket (or 5/8” wrench)  
#2 Phillips screwdriver  
Torpedo bubble level

## Large Parts Box Packing List

4 pinball machine legs, with levelers and tightening nuts  
8 acorn-head leg bolts  
1 plumb bob weight, with nylon wing nut  
5 steel mirror-finish pinballs  
1 USA line power cable  
1 “L”-shaped, 5/16” hex key  
assorted spare game decals  
spare set of slingshot plastics  
assorted plastic game key fobs  
game manual CD

**Note:** If anything is missing from your parts box, send an email to [warranty@jerseyjackpinball.com](mailto:warranty@jerseyjackpinball.com) for a replacement.



### If you wish to save your shipping carton:

**2)** With the help of at least one other person, carefully tip the carton over and lay it on its “TRUCK THIS SIDE ONLY” side (see figure A3a). Using the nylon strap as a handle, slide the game and packing materials out of the carton.

**Note:** You may need to spread a blanket or some other form of cushion under the game to protect the floor.

**3) DO NOT CUT THE NYLON STRAP** holding the backbox down at this point. Remove the foam padding from the corners of the game and carefully stand it upright again (as it was in the carton during shipping).

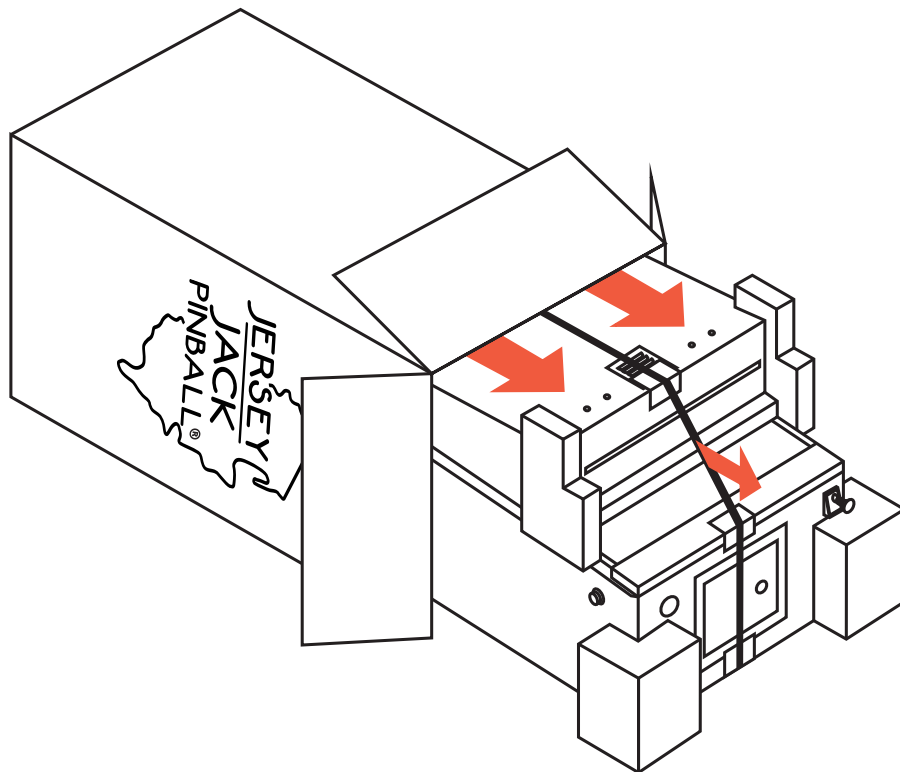


Figure A3a. Sliding the game out of the carton.



### If you do not wish to save your shipping carton:

**2)** Using a utility knife, remove the “TRUCK THIS SIDE ONLY” side of the shipping carton (see figure A3b). Carefully cut down the left and right sides of the box. Let the flap fall to the floor, then cut across the bottom edge (taking care not to damage the floor).

**3) DO NOT CUT THE NYLON STRAP** holding the backbox down at this point. Remove the foam padding from the corners of the game.

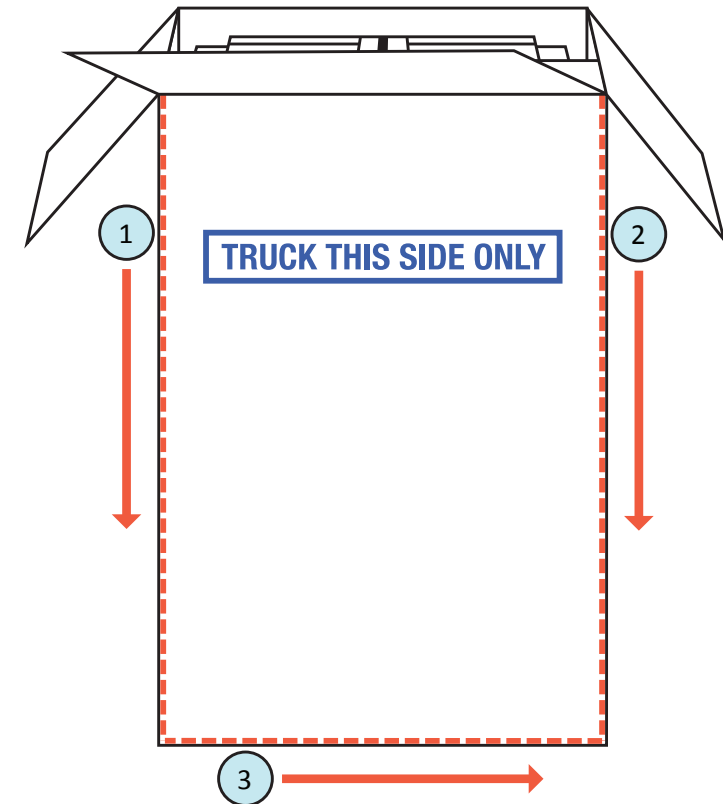
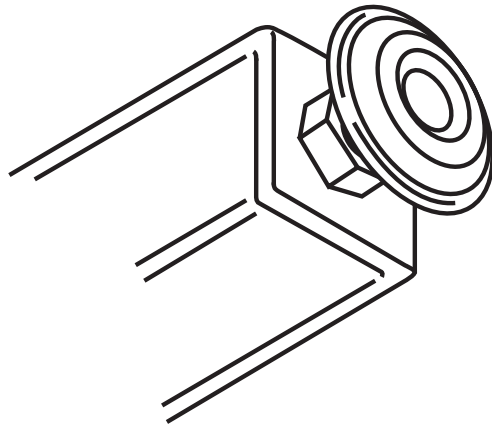


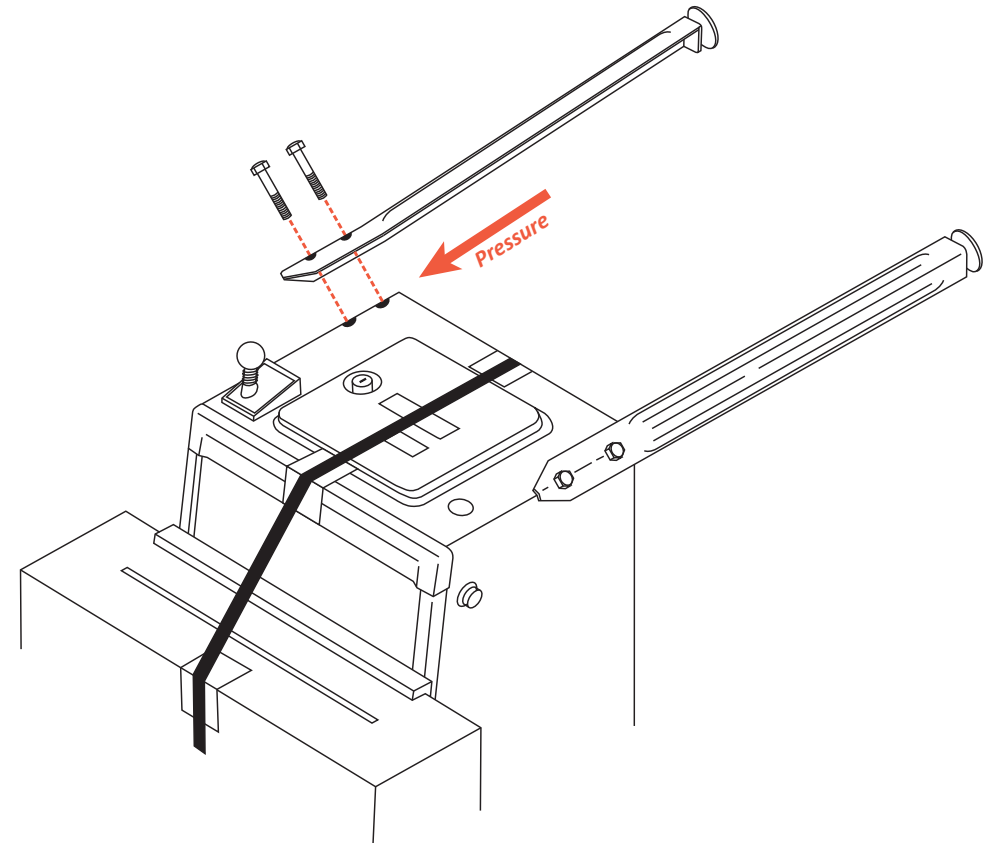
Figure A3b. Removing the “TRUCK THIS SIDE ONLY” side of the carton.

**4)** Locate the game's four legs. Adjust the tightening nut and leg leveler on each leg as shown in figure A4. Thread the tightening nut onto each leg. Position it all the way down, next to the foot of the leveler. Thread the leveler into each leg until the tightening nut is against its underside.



**Figure A4.** Adjusting a leg leveler and tightening nut.

**5)** Locate the eight acorn-head leg bolts in the loose parts. Thread 2 leg bolts through each leg and attach it to the cabinet (see figure A5). Using a 5/8" socket and ratchet or a 5/8" wrench, tighten the bolts firmly, while maintaining pressure (in the direction of the red arrow) on each leg.



**Figure A5.** Installing the front legs and cabinet protectors.

**6)** With the help of at least one other person, carefully tip the game onto its front legs. Lift the rear of the cabinet and have two people support it or place it on a sturdy support. As with the front legs, attach the two rear legs, using the four remaining acorn-head bolts. Tighten all bolts firmly, while maintaining upward pressure on the legs (see figure A6). Lower the game onto its legs.

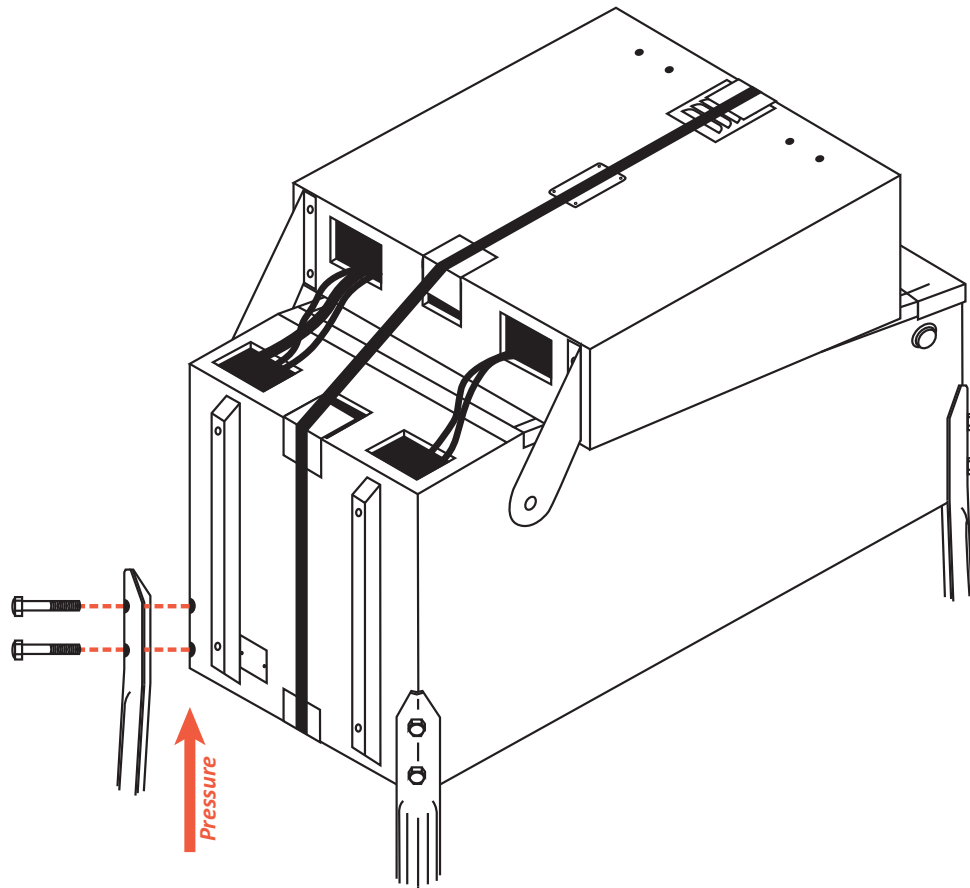


Figure A6. Installing the rear legs and cabinet protectors.

**7)** Using wire cutters, cut the nylon strap holding the backbox down (**CAUTION: PROTECT YOUR EYES** and have helpers/bystanders move away! The sharp ends of the cut strap will likely whip violently away from the game!). Remove the remainder of the packing material from the game and raise the backbox to its upright position (see figure A7). Ensure that the cables and wires in the neck of the game do not get pinched at any time during this process.

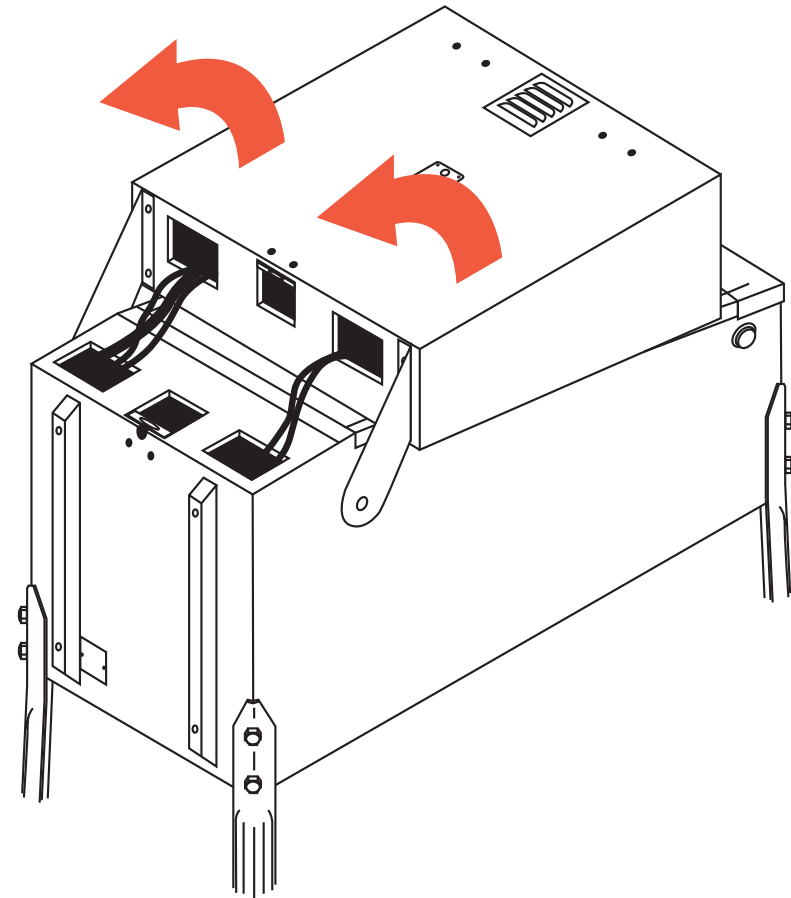


Figure A7. Raising the backbox to its upright position.

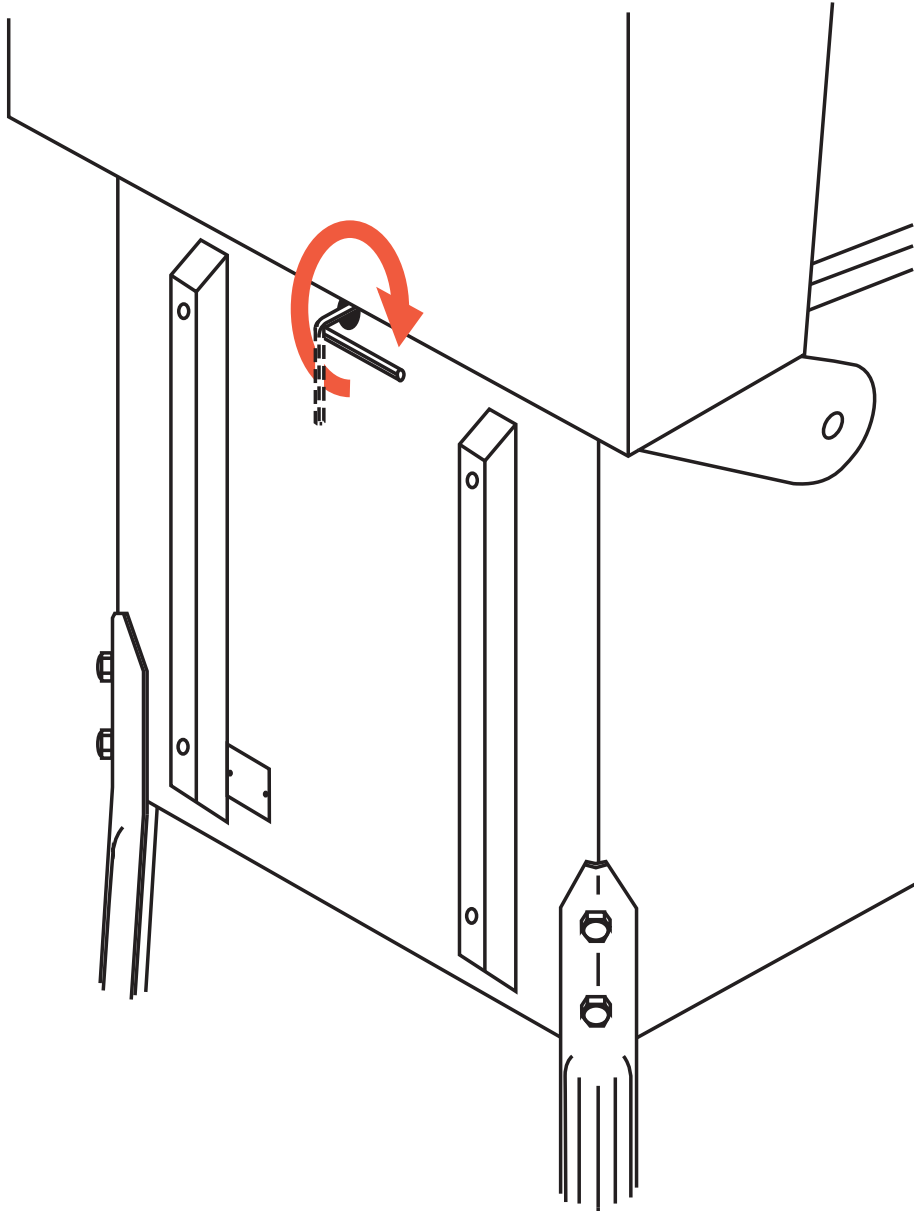


Figure A8. Locking the backbox in the upright position.

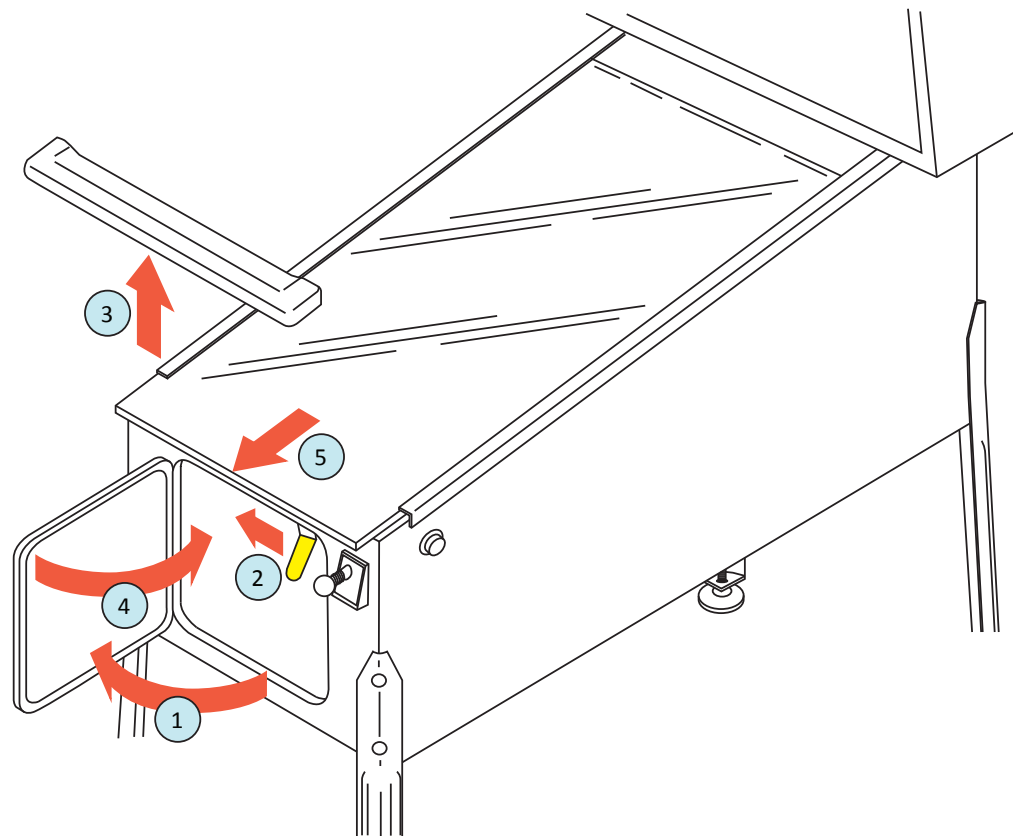
**8)** Locate the “L”-shaped, 5/16” hex key for the backbox Roto-Lock in the loose parts. Insert it into the hole at the base of the backbox and turn it a full 270 degrees CW (see figure A8).

**Note:** When the Roto-Lock is in the fully locked position, the key will not turn any further in the CW direction.

**9)** Using at least two people, lift the game and move it to the intended play area.  
**DO NOT SLIDE LEGS ACROSS THE FLOOR.**



**10)** You will find the coin door keys attached to the ball shooter, on the front of the game. Cut them loose with a pair of wire cutters. Remove the playfield glass: 1) open the coin door, 2) slide the yellow lockdown bar lever to the left, 3) lift the lockdown bar straight up and out, 4) CLOSE AND LOCK THE COIN DOOR (to prevent scratching of playfield glass), then 5) slide the playfield glass off of the front of the cabinet (see figure A10). Carefully set the glass aside.

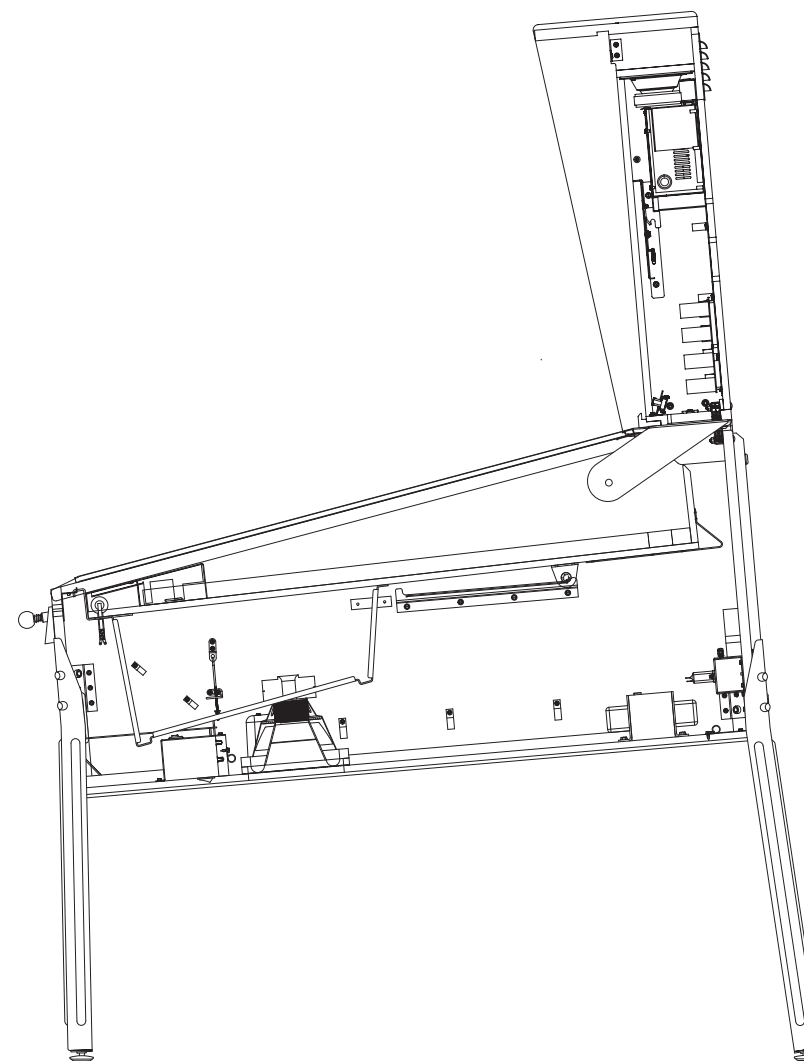


**Figure A10. Removing the playfield glass.**

**11)** Locate the game's five pinballs in the loose parts. Place all five balls in the ball trough (drop them onto the playfield, below the flippers, and allow them to drain). Level the game side-to-side by placing a bubble level on the playfield surface (top

and bottom) and adjusting the leg levelers and tightening nuts accordingly. When finished, secure the tightening nut against the underside of each leg.

**12)** Your Jersey Jack Pinball® playfield is designed to rest in four distinct positions in its cabinet for game play, cleaning and maintenance. Figure A11 shows the playfield in its standard position.



**Figure A11. Playfield in the game play position.**

**13)** Grasp the playfield under its bottom arch and swing it upward until the playfield support brackets underneath are fully visible (figure A12). Move the playfield to position 2 (figure A13). Pull it upward and outward until the first pair of feet reach the top of the lockdown bar receiver; then lower the playfield, resting the feet in the steel channel.

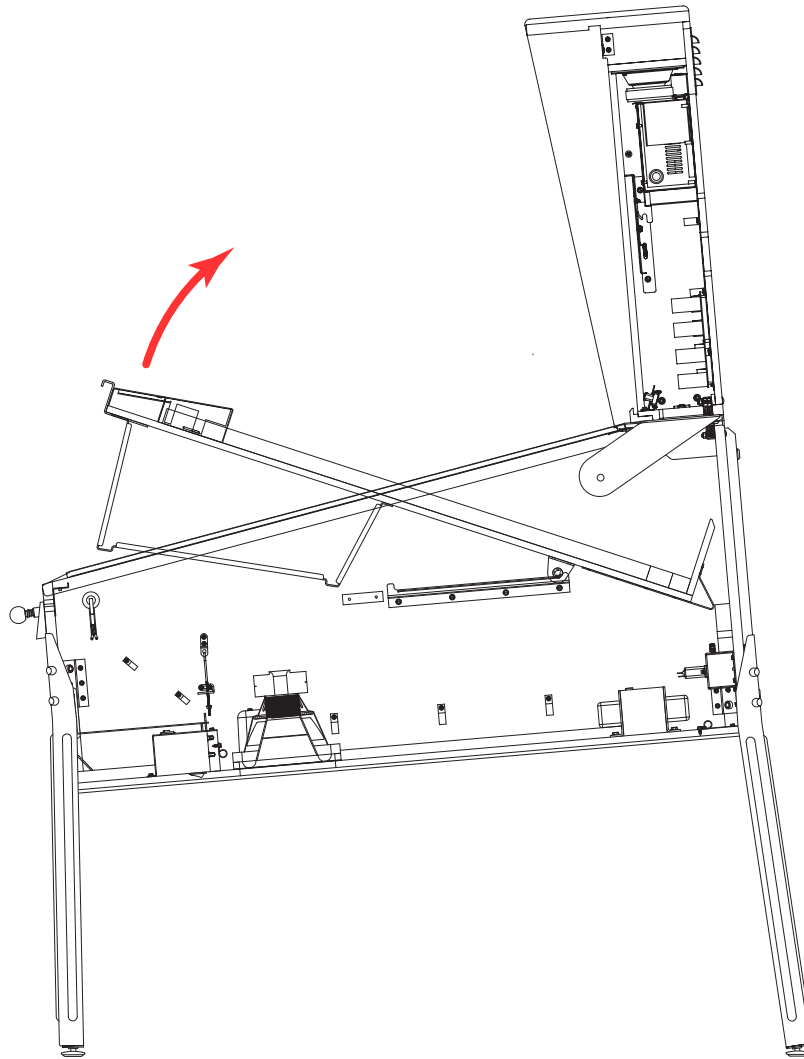


Figure A12. Swing the playfield upward.

**Note:** The game has a safety mechanism to keep the balls in the trough from falling out when the playfield is lifted.

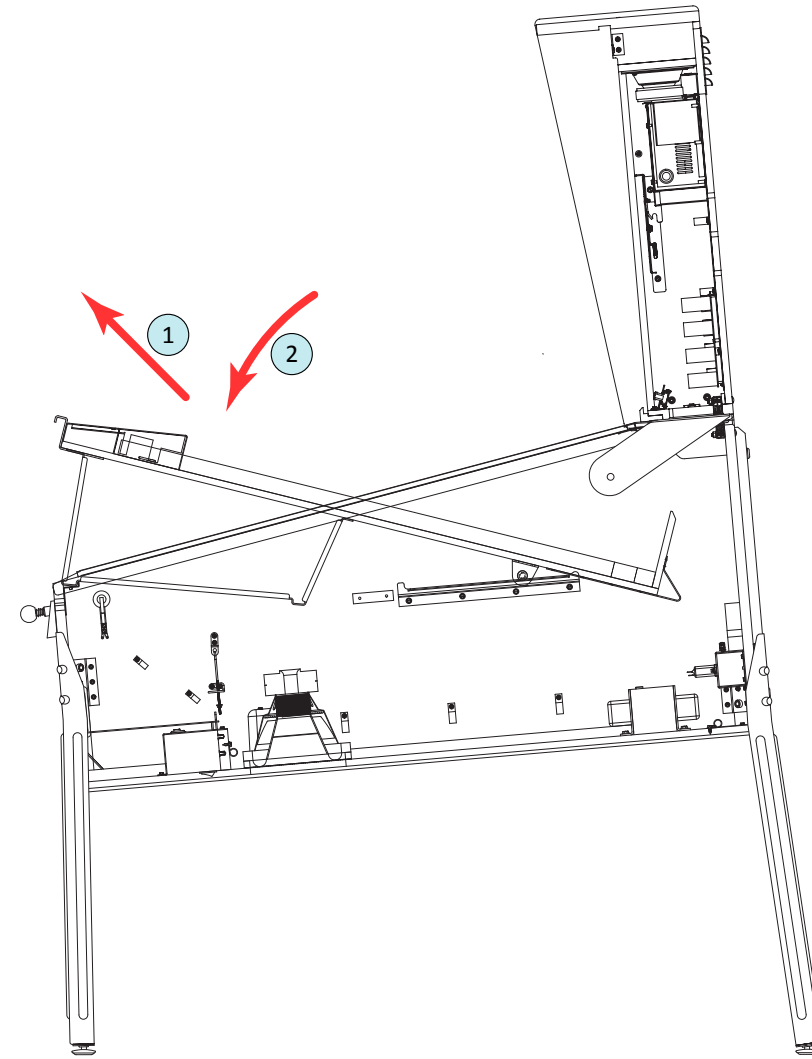


Figure A13. Moving the playfield to position 2.

**14)** Move the playfield from position 2 to 3 (figure A14). Pull it upward and outward until the second pair of feet in the support brackets reach the top of the lockdown bar receiver; again, lower the playfield, resting the feet in the channel.

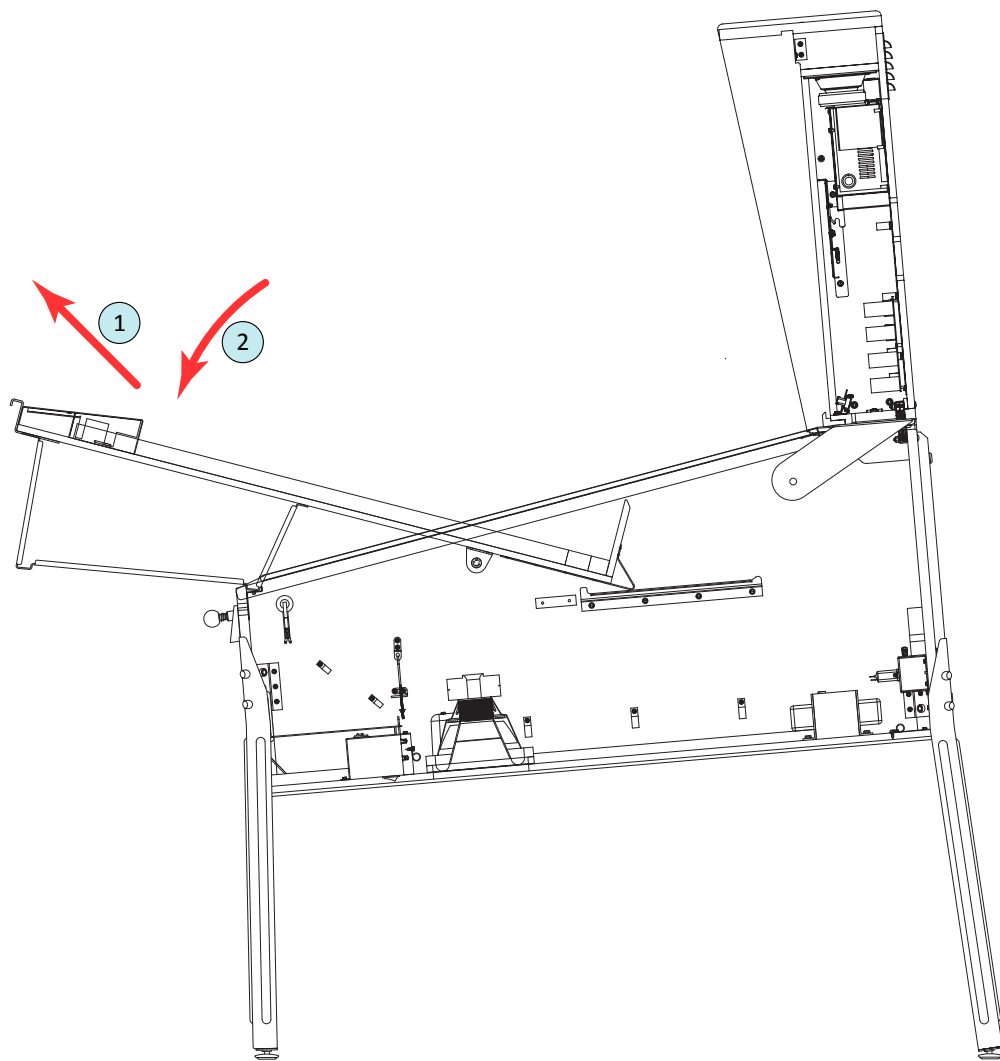


Figure A14. Moving the playfield to position 3.

**15)** Move the playfield from position 3 to 4 (figure A15). Grasp the two playfield support brackets and pull the playfield outward until the playfield support/slide bracket stop is reached; then swing the playfield up, resting the bottom arch against the front of the backbox.

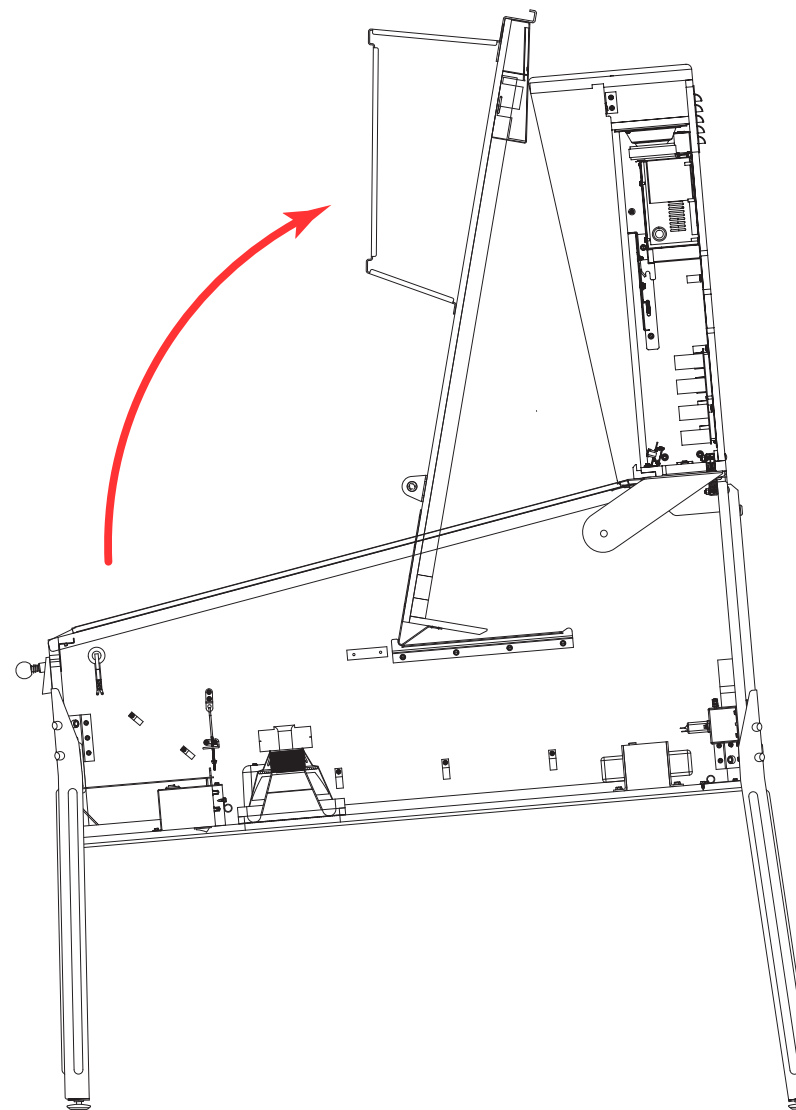
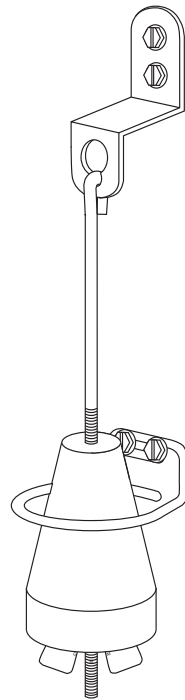


Figure A15. Moving the playfield to position 4.

**16)** Locate the plumb bob weight and nylon wing nut in the loose parts. Locate the plumb bob tilt hanger wire and contact brackets, mounted on the inside, left sidewall of the lower cabinet. Slide the weight onto the straight end of the hanger wire and thread the wing nut onto the shaft underneath it (figure A16). Raising the weight higher up the hanger wire (by tightening the wing nut underneath it) makes the tilt mechanism more sensitive; lowering the weight makes it less sensitive.

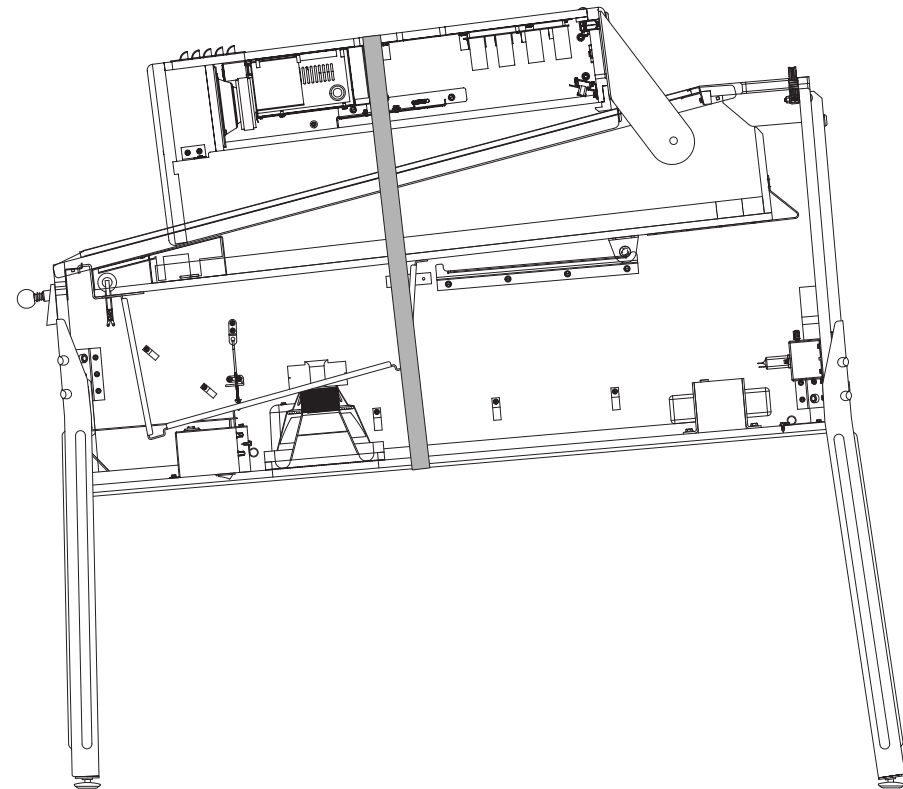


**Figure A16. Assembled plumb bob tilt mechanism.**

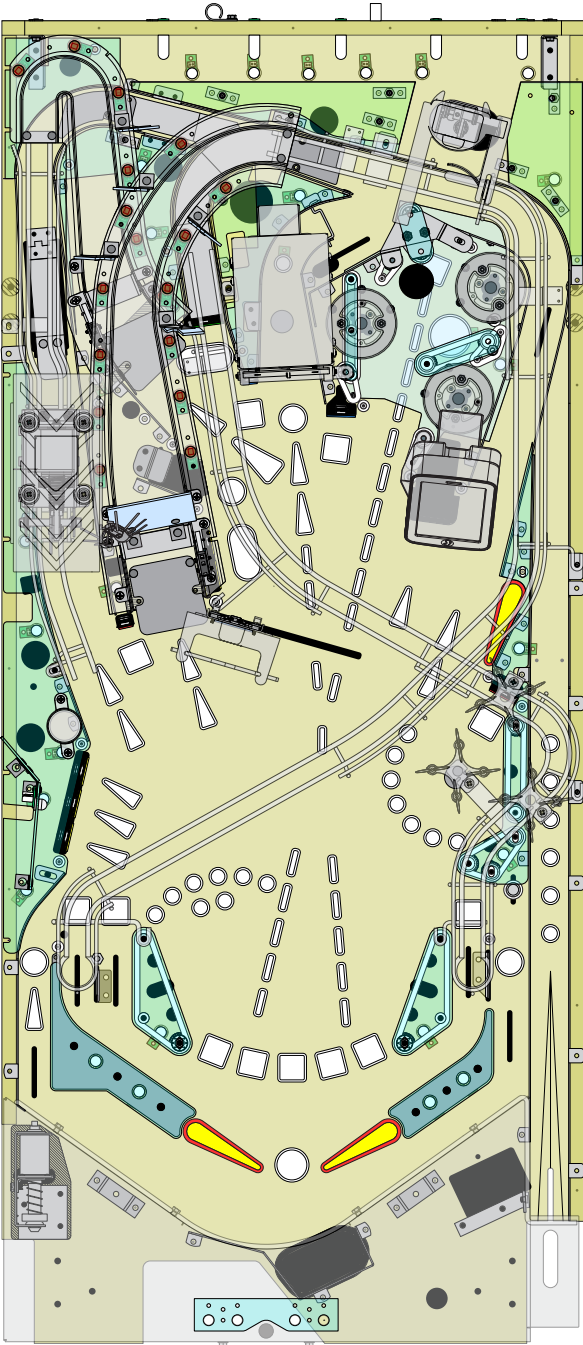
**17)** Locate the power cord in the loose parts. Remove the line cord cover plate from the rear of the lower cabinet. Plug the female end of the power cord into the exposed receptacle, inside of the back of the machine. Replace the line cord cover plate and plug the other end of the power cord into a grounded wall outlet. **DO NOT CUT THE GROUND LUG OFF OF THE POWER CORD!**

**18)** Power up the game (the on/off switch is located under the cabinet, just behind the right front leg; it rocks in one direction to turn the game on and in the reverse direction to turn it off) and test it for proper operation. Adjust game settings as appropriate (see Game Menu System, Section B). Reinstall the playfield glass (and lockdown bar) in the cabinet; your game is ready to play!

**Note:** Before transporting the game, lower the backbox (figure A17). Insert the 5/16" hex key into the hole at the base of the backbox and turn it a full 270 degrees CCW. Ensure that cables and wires in the neck of the machine do not get pinched or pulled taut as the backbox is laid down. Place a large piece of cardboard (or the piece of foam used when the game was shipped) between the top lip of the backbox and the lower cabinet to protect the cabinet side rails. Tie or strap the backbox securely to the cabinet to prevent it from bouncing during transit.



**Figure A17. Transport game with the backbox lowered and secured.**

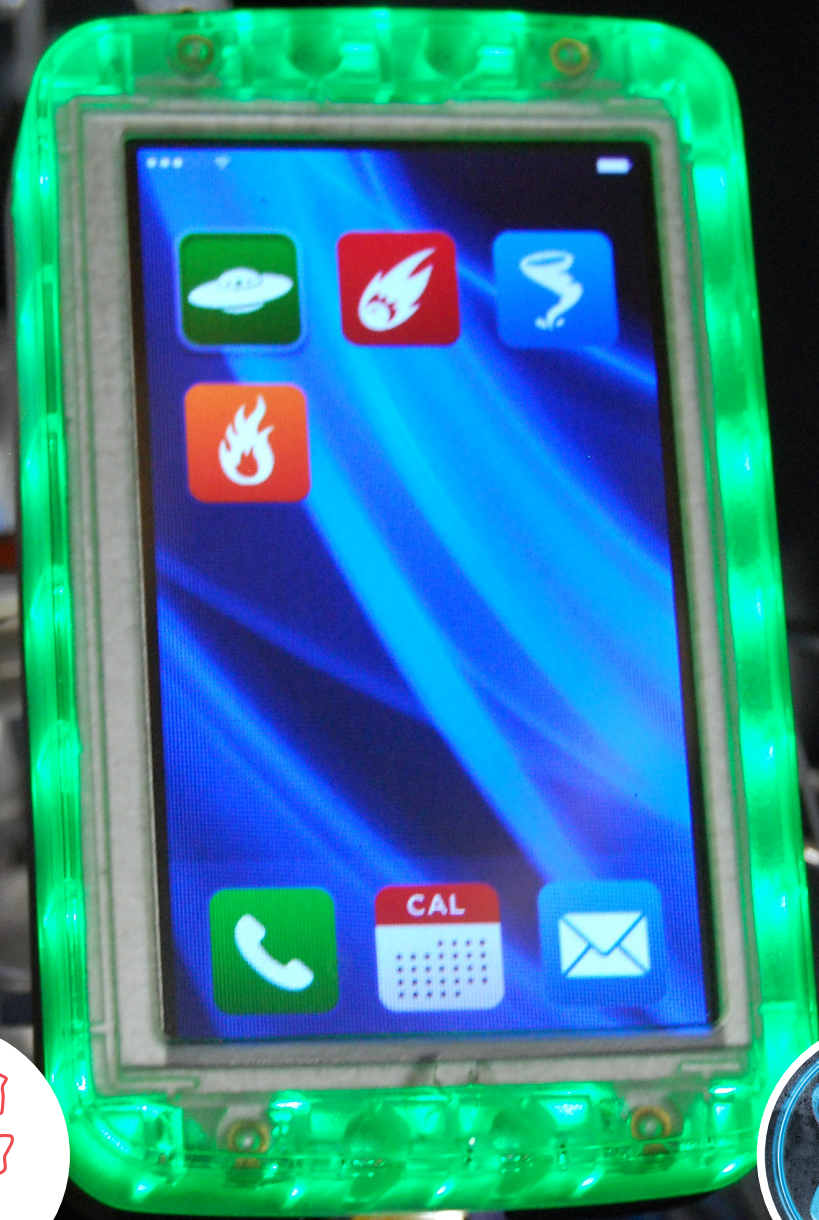


## A.2 Dialed In Rules & Shot Maps

**Coming Soon!**







# Section B

## The Dialed In Menu System



# B.1 Menu System Basics

The Dialed In menu system allows the user or operator of the game to test the performance of its components and assemblies, personalize its rules and track, monitor or manage its play and/ or earnings. Four pushbuttons are used to navigate the menu system, make adjustments, enter data, check components, trigger tests, etc. The buttons are located on the inside of the coin door, mounted to a bracket nearest its outside edge (circled in figure B1).

The buttons are labeled: black is **Enter**, red next to it is **Up/+** , next red is **Down/-** and green is **Back/Escape**. Each time you press a button, you will hear an audio response through the game’s speakers. Use **Enter** to enter a sub-menu, select a menu item to change or execute a command. Use **Up/+** or **Down/-** to maneuver through menu choices or increase/decrease data values for a selected menu item. Use **Back/Escape** to exit a sub-menu or escape from a selected menu item without saving changes. Each sub-menu screen contains specific instructions for button use and/or visual cues superimposed over the button illustrations in the lower left corner of the LCD screen.

To enter the menu system at any time (after system boot-up), open the coin door and momentarily press **Enter**. The main menu screen will instantly appear on the game’s LCD monitor (figure B2). The current date and time will be displayed in the lower right hand corner of the screen, along with the version of software the game is running. All of the RGB LEDs and GI/flasher LEDs in the game will light up in white to improve visibility above and below the playfield.

From the main menu screen, you can access the game’s **Test Report** (if present), device/component tests, game settings, audits, utilities, presets, reports and resets. Simply move up/down in the list of menu icons, using **Up/+** and **Down/-**, then press **Enter** to select the sub-menu you’d like to access. To exit the menu system and return to game play, press **Back/Escape**. Specific details for each main menu item are included later in this section. From this screen, you can also easily jump into the **Game Presets, Difficulty Presets & Customization** menus to quickly customize your game.

Note: When the coin door is opened, the game’s safety interlock switch (the upper switch on item 14, page C-2 of this manual) disables the 70-volt power running to the playfield. In order to activate 70-volt devices in any of the diagnostics tests, you must either close the coin door or pull the safety interlock switch’s actuator out (it will “click” and lock in place). When you close the coin door, the interlock switch actuator will be pushed back into its normal (unlocked) position. **CAUTION:** Most of the high power coils will be enabled, so slingshots, pop bumpers, VUKs and flippers (if activated by the flipper buttons) will kick a ball around as it rolls down the playfield - or fire when trigger switches are closed by any means. **So please be careful with your fingers and tools on the playfield surface! If you lift the playfield for any reason, please be careful around high power coil lugs, as they present a shock hazard!**

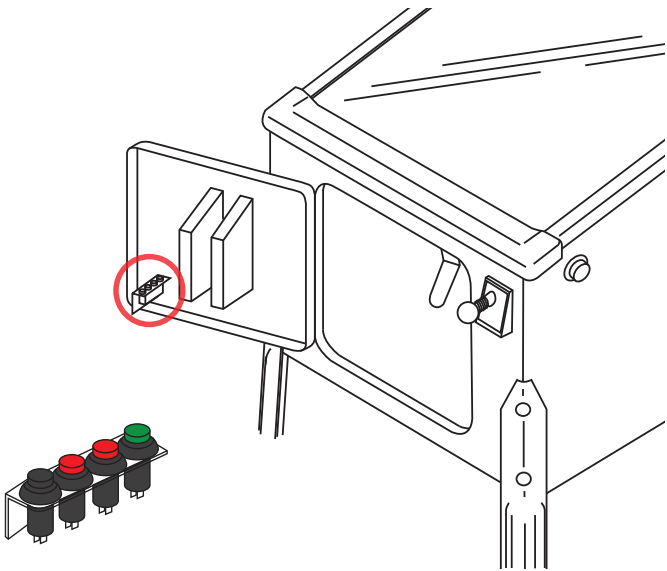


Figure B1. Menu system navigation buttons.



Figure B2. Dialed In menu system’s main menu screen.



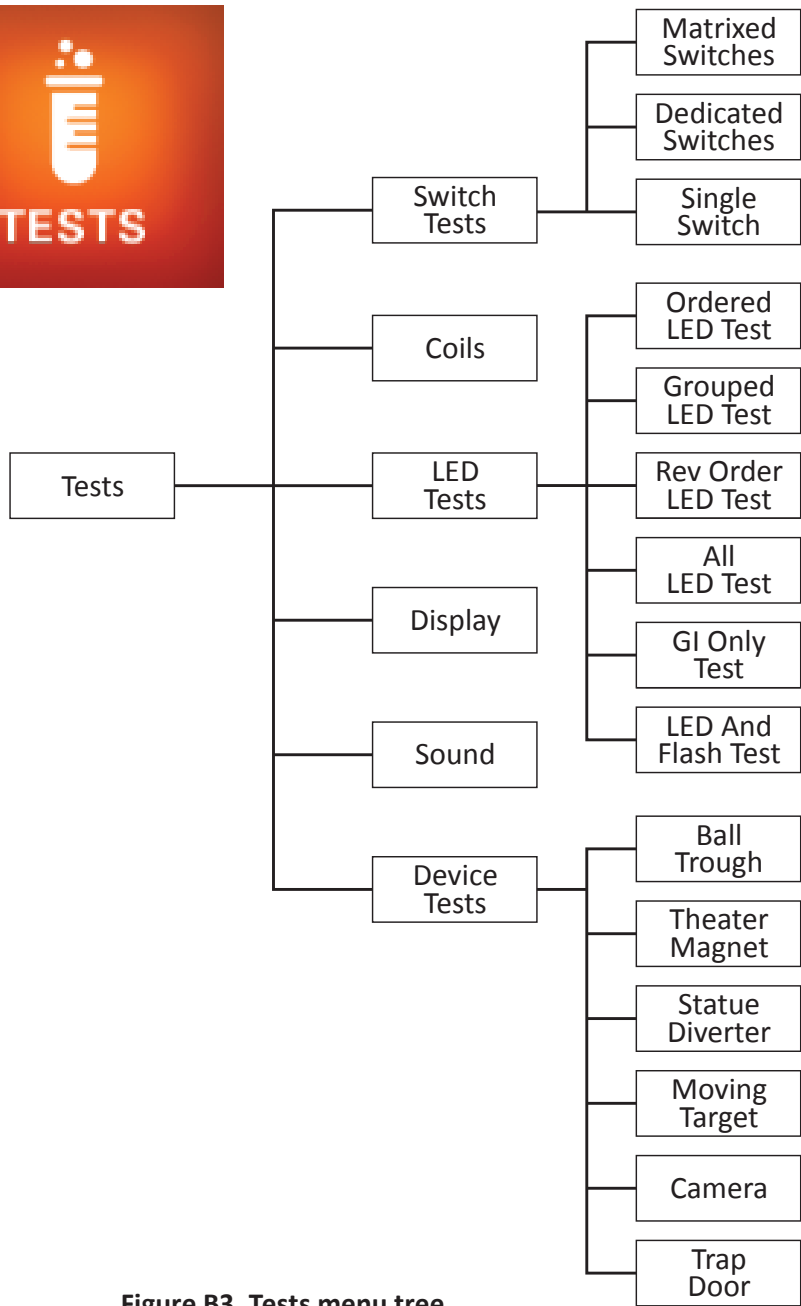
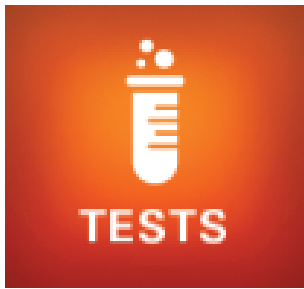


Figure B3. Tests menu tree.

## B.2 Tests

The **Tests** menu (see figure B3 for an outline) allows the user to test all major components and assemblies in the game for proper operation.

**Switch Tests** - test all matrixed or dedicated switches in the game. A screen will be displayed for the selected group (**Matrixed Switches** or **Dedicated Switches**) showing the status of every switch within the group. As you manually open or close switches, the status for each is updated on the screen and you hear an audio response through the game’s speakers. In **Single Switch** test, you can scroll through the entire list of switches and repeatedly open or close any single switch.

**Coils** - test virtually any coil, magnet, motor or light in the game. A screen will be displayed, listing all of the coils, magnets, motors and lights in the game that can be energized. You can auto-cycle through the list one at a time, or repeatedly/manually trigger a single device.

**LED Tests** - test the RGB LEDs in the game (feature and GI lighting). **Ordered LED Test** - you can step through the list of RGB LEDs, one at a time, in hardware order, and test the color-producing capability of each. **Grouped LED Test** - you can step through the list of RGB LEDs, one at a time, in grouped order, and test the color-producing capability of each. **Rev Order LED Test** - basically the same as the **Ordered LED Test**, except the LEDs are listed in reverse hardware order. **All LED Test** - all LEDs (RGB and GI) will light at once, allowing you to test the color-producing capability of the entire chain at one time. **GI Only Test** - allows you to test the color-producing capability of LEDs used for GI purposes. **LED And Flash Test** - allows you to test the functionality of all CPU-controlled lighting in the game at one time.

**Display** - test the basic colors and alignment of images on the game’s LCD monitor. You can step through several fundamental colors on the screen and superimpose a grid on it to check for proper centering and alignment of displayed images.

**Sound** - test the game’s sound system for proper balance and operation with sound effects, voices, music and a wide variety of tones and sweeps.

**Device Tests** - test all of the major game devices/assemblies (**Ball Trough, Theater Magnet, Statue(Betty) Diverter, Moving Target, Camera & Trap Door**) for proper operation. A specific screen will be displayed for each device, allowing the user to repeatedly exercise it and ensure that it is functioning correctly.



## Matrixed Switch Test

When you enter the **Matrixed Switch Test**, the LCD monitor will display the screen shown in figure B4. A window highlighting locations/states of switches on the game’s playfield (at right in figure B4) can be toggled on and off by pressing the **Start** button on the front of the cabinet. The playfield window can be moved to the center or right side of the screen by using the **Up/+** or **Down/-** buttons. Each square in the playfield window corresponds to a matrixed switch. The color of the square (in both the playfield window and the matrix itself) represents the current state of that switch.

Active switches, regardless of their type, are displayed in bright green squares. Inactive opto switches are displayed in light tan (if normally unblocked) or dark tan (if normally blocked) squares; all other inactive switches are displayed in bright blue (if normally open) or navy blue (if normally closed) squares. Bad switches (switches that have been inactive for approximately 60 balls played) are displayed in red squares. Unused positions in the matrix are represented by gray squares; any unused position that is registering active (an error) is represented by a brown square.

The driver (column) and return (row) numbers for each switch, along with corresponding wire colors and I/O Board connector/pin numbers, are shown at the top and left side of the screen, respectively.

You can simultaneously test as many switches as you like, or repeatedly test a single switch, observing the results in the matrix and/or the playfield window. The game also provides an audible response each time the state of a switch changes. Note: When adjusting a switch, the best method for testing it is to roll a pinball over it, through it or into it.

To exit the **Matrixed Switch Test** at any time, press the **Back/Escape** button.

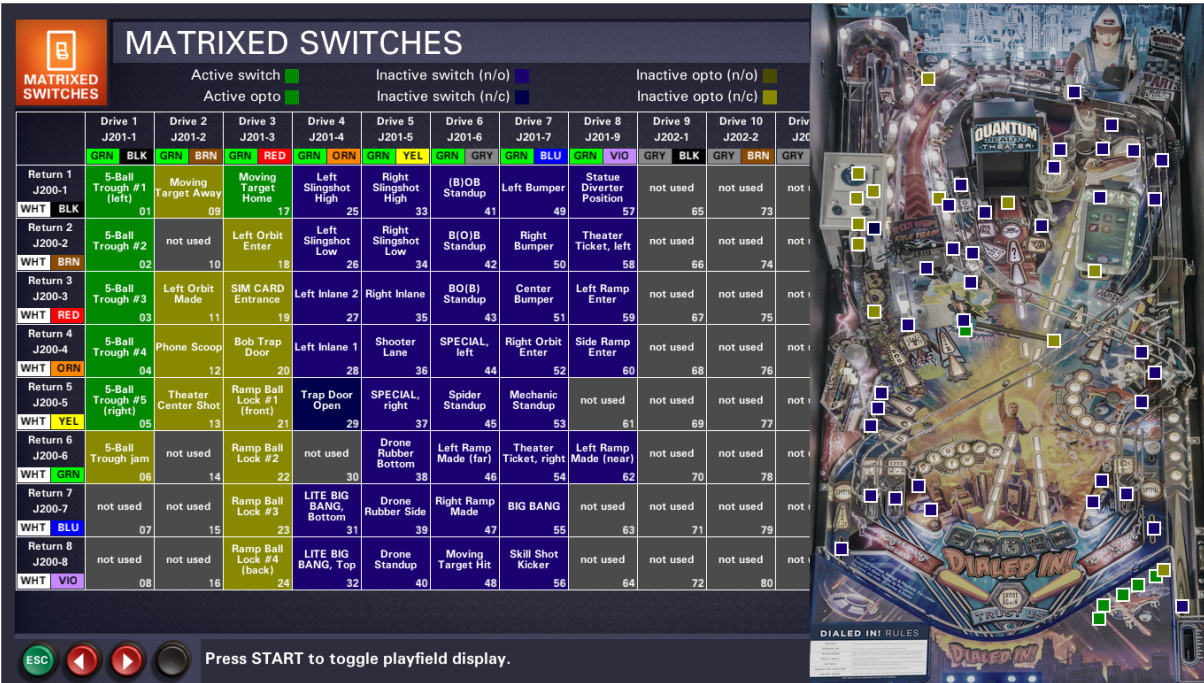


Figure B4. Matrixed Switch Test screen.



# Dedicated Switch Test

When you enter the **Dedicated Switch Test**, the LCD monitor will display the screen shown in figure B5. The four dedicated switch strings are shown, grouped by their common ground wire. Each square in each string corresponds to a specific switch; the color of the square represents the current state of that switch.

Active switches, regardless of their type, are displayed in bright green squares. Inactive opto switches are displayed in light tan (if normally unblocked) or dark tan (if normally blocked) squares; all other inactive switches are displayed in bright blue (if normally open) or navy blue (if normally closed) squares. Bad switches (switches that have been inactive for approximately 60 balls played) are displayed in red squares. Unused positions in the matrix are represented by gray squares; any unused position that is registering active (an error) is represented by a brown square.

Wire colors and I/O Board connector/pin numbers are shown for each string of switches.

You can simultaneously test as many switches as you like, or repeatedly test a single switch, observing the results on the screen. The game also provides an audible response each time the state of a switch changes.

To exit the **Dedicated Switch Test** at any time, press the *Back/Escape* button.

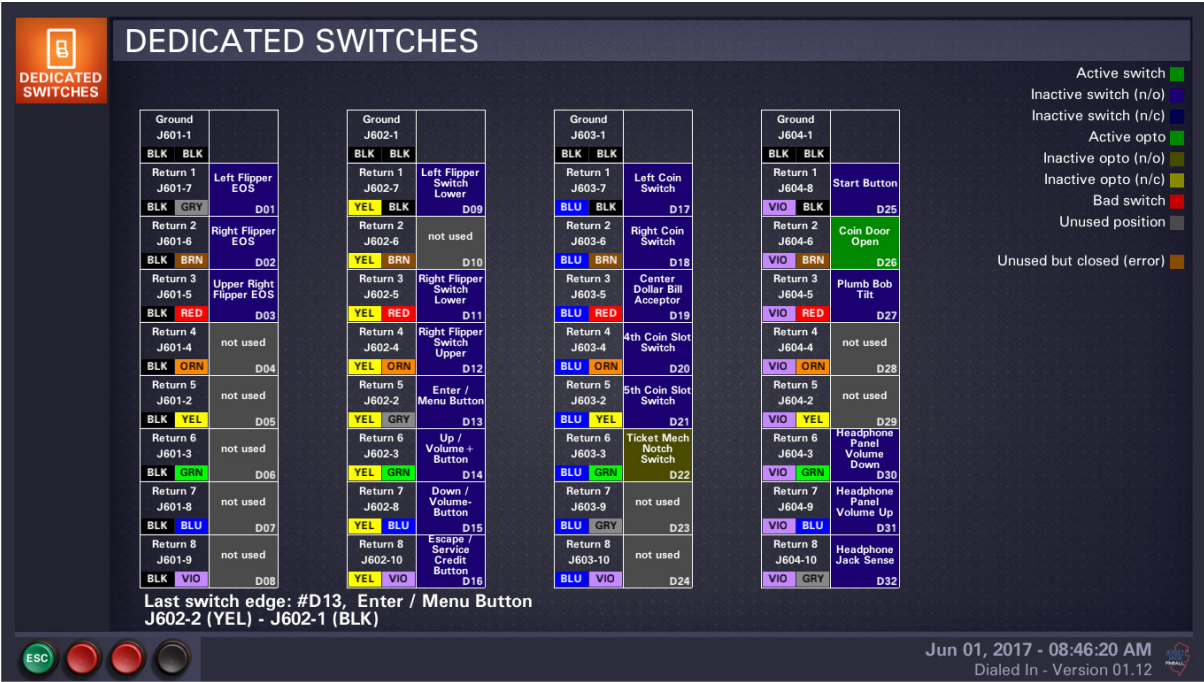


Figure B5. Dedicated Switch Test screen.





# Single Switch Test

When you enter the **Single Switch Test**, the LCD monitor will display the screen shown in figure B6. The entire list of dedicated and matrixed switches is shown alongside a window highlighting the location/state of the currently selected switch on the game’s playfield (at right in figure B6). The switch is displayed as a small, blinking square; the color of the square represents its current state.

An active switch, regardless of its type, is displayed as a bright green square. An inactive opto switch is displayed as a light tan (if normally unblocked) or dark tan (if normally blocked) square; any other inactive switch is displayed as a bright blue (if normally open) or navy blue (if normally closed) square. A bad switch (a switch that has been inactive for approximately 60 balls played) is displayed as a red square. Unused positions in the matrix are not displayed in the playfield window.

All switch driver (column) and return (row) numbers are shown, along with corresponding wire colors and I/O Board connector/pin numbers.

You can scroll through the list of matrixed switches, using the **Up/+** and **Down/-** buttons, and select any switch to test. You can then repeatedly open or close the selected switch, observing the results in the playfield window. The game also provides an audible response each time the state of the switch changes. Note: When adjusting a switch, the best method for testing it is to roll a pinball over it, through it or into it.

To exit the **Single Switch Test** at any time, press the **Back/Escape** button.

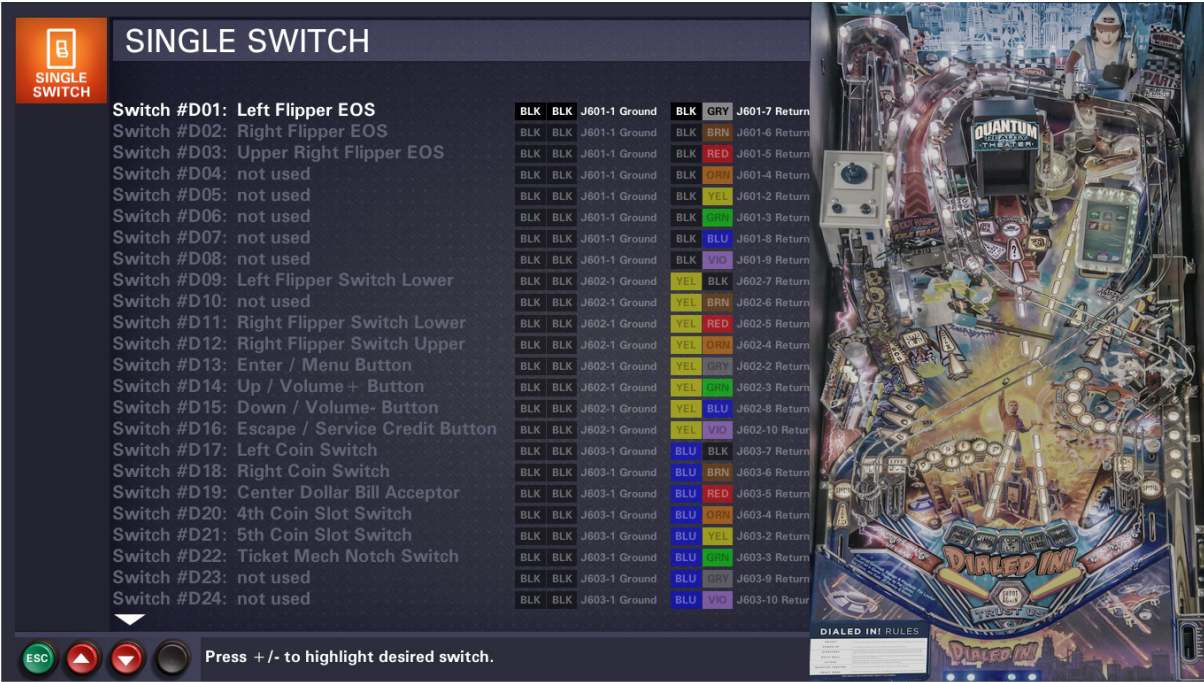


Figure B6. Single Switch Test screen.





# Coils Test

When you enter the **Coils Test**, the LCD monitor will display the screen shown in figure B7. The entire list of coils, magnets, motors and lights is shown alongside a window highlighting the location of the currently selected device on the game’s playfield (at right in figure B7). The device is displayed as a small, white, blinking square. Note: Devices in the list that cannot be activated in the **Coils Test** are highlighted in blue text (these devices have their own specific tests).

Coil number, power/trigger wire colors, I/O Board connectors/pins, drive transistor, in-line fuses and supply voltage level are provided for each device in the list.

There are three different modes for triggering a device: **RUNNING**, **REPEAT** and **MANUAL**. The current mode is highlighted in green text at the top of the screen; you change the current mode by pressing the **Enter** button. In **RUNNING** mode, the game automatically cycles through the list, triggering each device once. In **REPEAT** mode, you scroll through the list (using the **Up/+** and **Down/-** buttons) and select a specific device; the game then repeatedly triggers it. In **MANUAL** mode, you select a specific device in the list and trigger it yourself using the **Start** button on the front of the cabinet.

Note: When the coin door is opened, the game’s safety interlock switch (the upper switch on item 14, page C-2 of this manual) disables the 70-volt power running to the playfield. In order to activate 70-volt devices in the **Coils Test**, you must either close the coin door or pull the safety interlock switch’s actuator out (it will “click” and lock in place). When you close the coin door, the interlock switch actuator will be pushed back into its normal (unlocked) position.

To exit the **Coils Test** at any time, press the **Back/Escape** button.



Figure B7. Coils Test screen.



# Ordered LED Test

When you enter the **Ordered LED Test**, the LCD monitor will display the screen shown in figure B8. The entire list of RGB LEDs is shown alongside a window highlighting the location of the currently selected LED on the game’s playfield (at right in figure B8). The LED is represented in the window by a small, white, blinking circle, while the actual LED flashes on the playfield.

Initially, the selected LED flashes the color white. You can change the color to red, green, blue and back to white by repeatedly pressing the **Enter** button. The current color will be displayed at the top of the screen. You can scroll through the list of LEDs using the **Up/+** and **Down/-** buttons.

For this test, the RGB LEDs are listed in hardware order (the order that the RGB LED boards are physically connected to controller boards, under the playfield). In this regard, the Dialed In RGB LED string can be considered one long chain. The **Ordered LED Test** allows you to step through and test this entire chain, one LED at a time.

To exit the **Ordered LED Test** at any time, press the **Back/Escape** button.

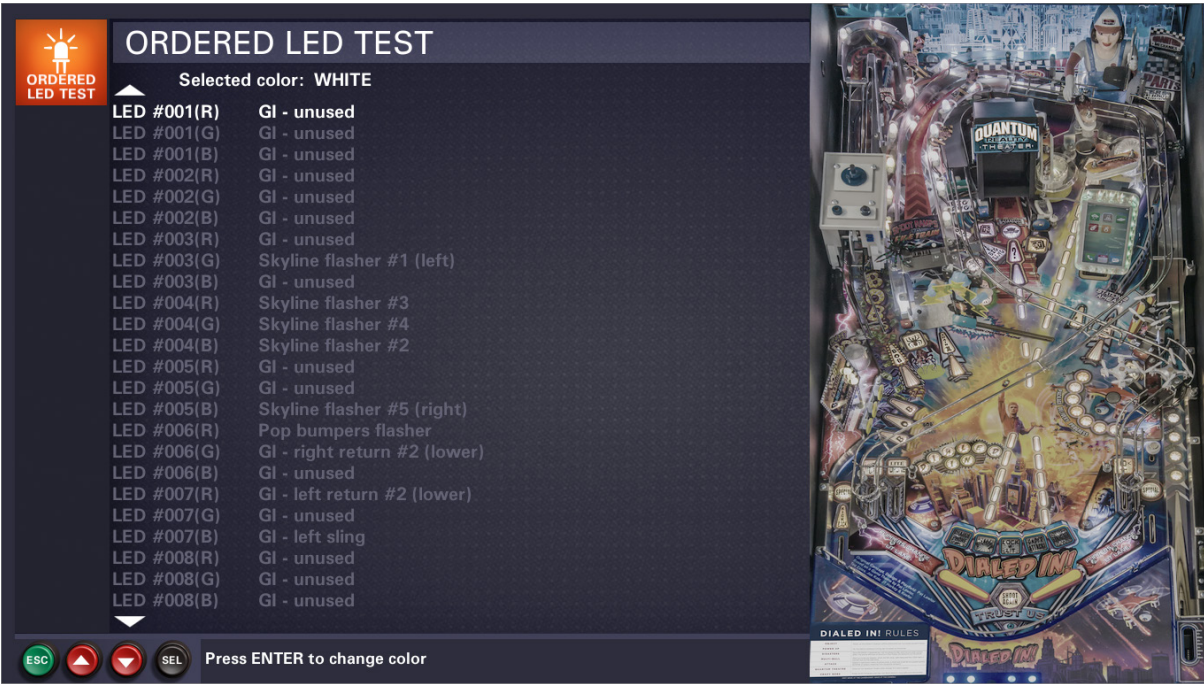


Figure B8. Ordered LED Test screen.





## Grouped LED Test

When you enter the **Grouped LED Test**, the LCD monitor will display the screen shown in figure B9. The entire list of RGB LEDs is shown alongside a window highlighting the location of the currently selected light on the game's playfield (at right in figure B9). The light is displayed in the window as a small, white, blinking circle while the actual LED flashes on the playfield.

Initially, the selected LED flashes the color white. You can change the color to red, green, blue and back to white by repeatedly pressing the **Enter** button. The current color will be displayed at the top of the screen. You can scroll through the list of LEDs using the **Up/+** and **Down/-** buttons.

For this test, the RGB LEDs are listed in logical/grouped order. The Dialed In RGB LED string is one long chain. The **Grouped LED Test** allows you to step through and test the entire string of RGB LEDs, in groups (All **Package Delivery Progress** inserts), in logical order (words spelled in order), as they are associated on the playfield.

To exit the **Grouped LED Test** at any time, press the **Back/Escape** button.

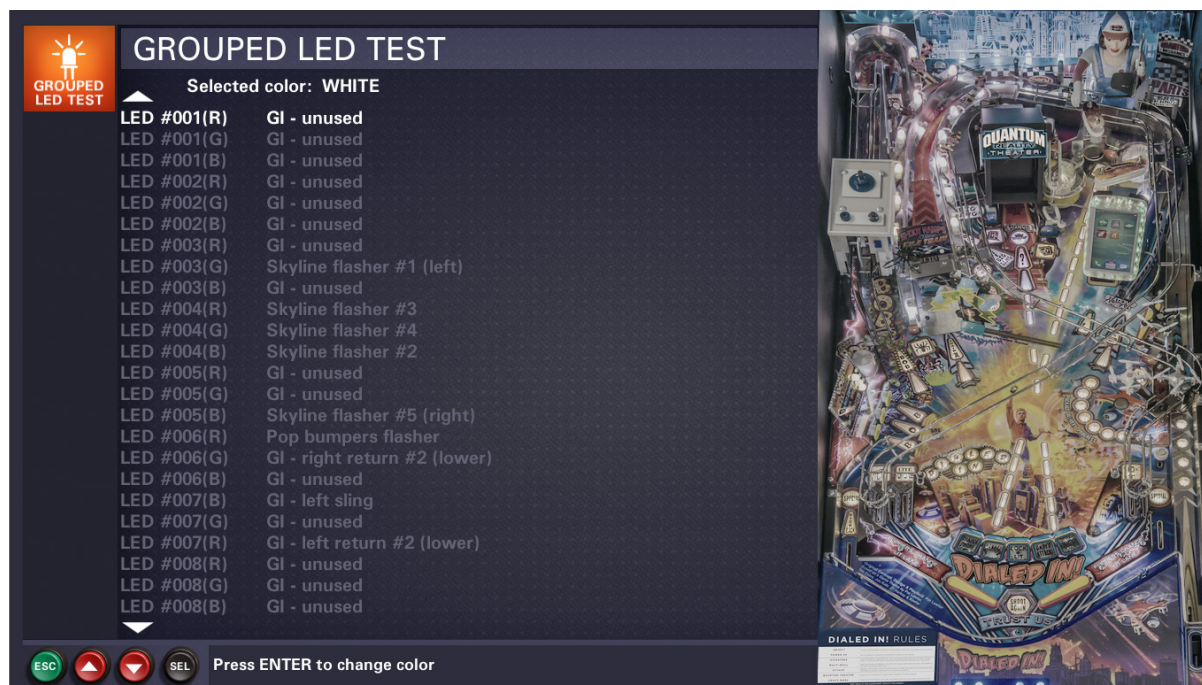
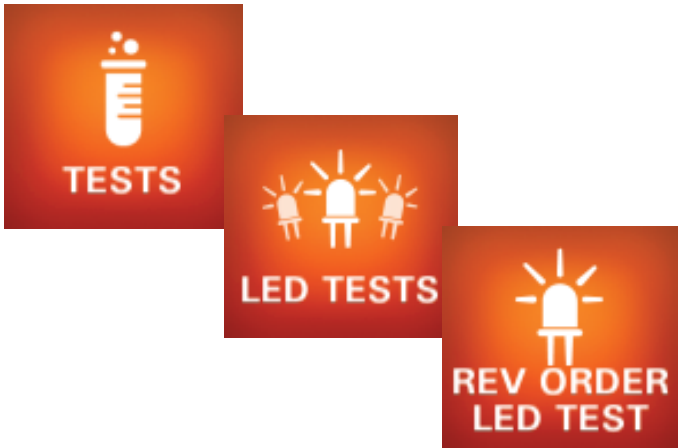


Figure B9. Grouped LED Test screen.



## Reverse Order LED Test

When you enter the **Reverse Order LED Test**, the LCD monitor will display the screen shown in figure B10. The entire list of RGB LEDs is shown alongside a window highlighting the location of the currently selected LED on the game’s playfield (at right in figure B10). The LED is represented in the window by a small, white, blinking circle, while the actual LED flashes on the playfield.

Initially, the selected LED flashes the color white. You can change the color to red, green, blue and back to white by repeatedly pressing the **Enter** button. The current color will be displayed at the top of the screen. You can scroll through the list of LEDs using the **Up/+** and **Down/-** buttons.

For this test, the RGB LEDs are listed in reverse hardware order (the reverse order that the RGB LED boards are physically connected to controller boards, under the playfield). The **Reverse Order LED Test** allows you to step through and test this entire chain, in reverse order, one LED at a time.

To exit the **Reverse Order LED Test** at any time, press the **Back/Escape** button.



Figure B10. Reverse Order LED Test screen.



## All LED Test

When you enter the **All LED Test**, the LCD monitor will display the screen shown in figure B11. The entire chain of RGB LEDs is lit at once. Initially, the LEDs are white and not flashing. You can change the color to red, green, blue and back to white by repeatedly pressing the **Enter** button. The current color will be displayed at the top of the screen. Press either the **Up/+** or **Down/-** button to toggle the LED string between flashing and constant-on.

To exit the **All LED Test** at any time, press the **Back/Escape** button.



Figure B11. All LED Test screen.





## GI Only Test

When you enter the **GI Only Test**, the LCD monitor will display the screen shown in figure B12. All LEDs used for general illumination are lit at once. Initially, the LEDs are white and not flashing. You can change the color to red, green, blue and back to white by repeatedly pressing the **Enter** button. The current color will be displayed at the top of the screen. Press either the **Up/+** or **Down/-** button to toggle the GI LEDs between flashing and constant-on.

To exit the **GI Only Test** at any time, press the **Back/Escape** button.



Figure B12. GI Only Test screen.



## LED And Flash Test

When you enter the **LED And Flash Test**, the LCD monitor will display the screen shown in figure B13. All RGB LEDs and GI LEDs are lit at once. All CPU-controlled lights (spotlights, pop bumper light, etc.) are flashing. Initially, the RGB and GI LEDs are white and not flashing. You can change the color of the RGB LEDs to red, green, blue and back to white by repeatedly pressing the **Enter** button. The current color will be displayed at the top of the screen. Press either the **Up/+** or **Down/-** button to toggle the RGB and GI LEDs between flashing and constant-on.

To exit the **LED And Flash Test** at any time, press the **Back/Escape** button.



Figure B13. LED And Flash Test screen.



## Display Test

When you enter the **Display Test**, the LCD monitor will display an edge-to-edge red screen, as shown at left in figure B14. You can change the full-screen color to green, blue then white by pressing the *Up/+*, *Down/-* or *Enter* button three times. Pressing one of these buttons again will fill the screen with a white grid against a black background; once more will change the grid to black against a white background.

The color screens allow you to test the LCD monitor’s color saturation performance, from edge to edge. The grids allow you to test image alignment on the monitor.

To exit the **Display Test** at any time, press the *Back/Escape* button.

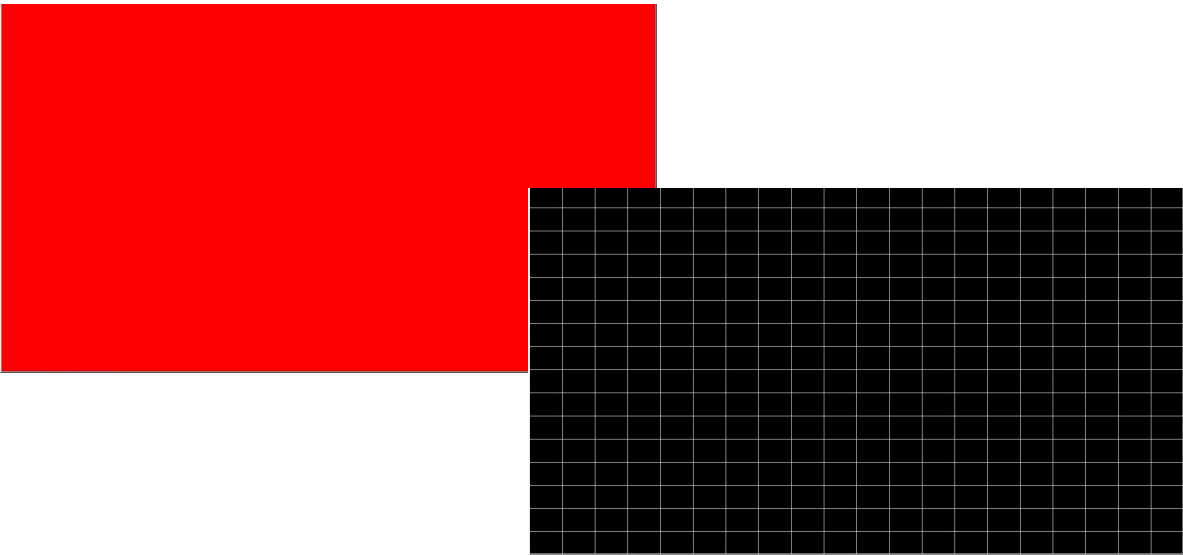
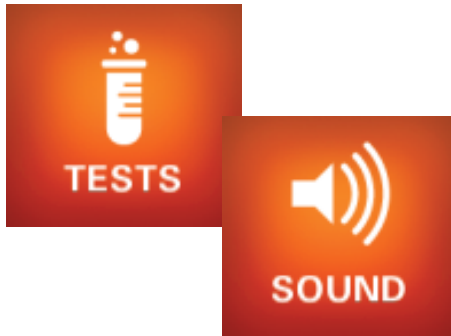


Figure B14. Display Test screens.



## Sound Test

When you enter the **Sound Test**, the LCD monitor will display the screen shown in figure B15. The list of programmed test sounds is displayed.

There are three different modes for testing sounds: **RUNNING**, **REPEAT** and **MANUAL**. The current mode is highlighted in green text at the top of the screen; you change the current mode by pressing the **Enter** button. In **RUNNING** mode, the game automatically cycles through the list, playing each sound once. In **REPEAT** mode, you scroll through the list (using the **Up/+** and **Down/-** buttons) and select a specific sound; the game then repeatedly plays it. In **MANUAL** mode, you select a specific sound in the list and trigger it yourself using the **Start** button on the front of the cabinet.

To exit the **Sound Test** at any time, press the **Back/Escape** button.

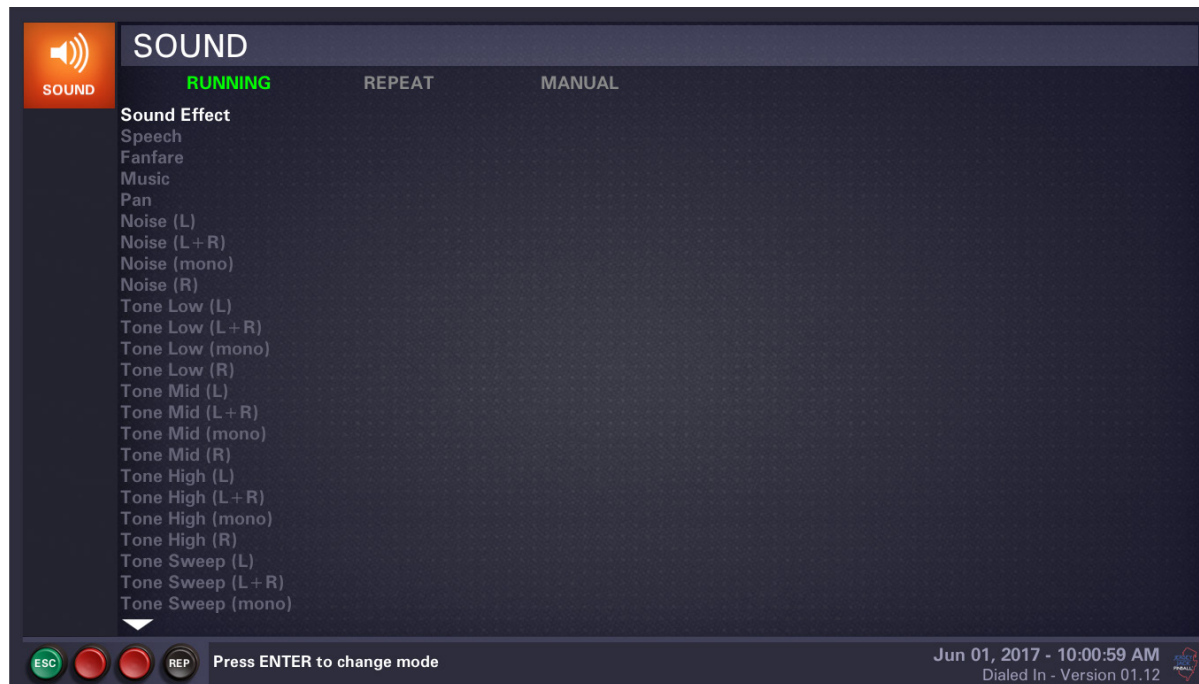


Figure B15. Sound Test screen.



## Ball Trough Test

When you enter the **Ball Trough Test**, the LCD monitor will display the screen shown in figure B16. The squares on the screen represent the current states of the six opto switch transmitter/receiver pairs in the ball trough mechanism, under the lower part of the playfield. There are five opto switches in the bottom of the trough (labeled “#1” to “#5”) and one higher, in the neck of the trough VUK (labeled “jam”). A green square represents a blocked opto switch, typically caused by a ball in that position in the trough. A transparent square represents an unblocked opto switch (no ball in that position). For reference, corresponding matrixed switch numbers are shown under each square.

You can use the **Enter** button to fire the trough VUK. The rightmost ball in the trough will be kicked into the shooter lane, then auto-launched up the playfield. Most of the high power coils will be enabled, so slingshots, pop bumpers, VUKs and flippers (if activated by the flipper buttons) will kick a ball around as it rolls down the playfield - so **be careful with your fingers!** You can empty the trough, one ball at a time (catching each one before it returns to the trough), and test all of the opto switches in the process.

Note: When the coin door is opened, the game’s safety interlock switch (the upper switch on item 14, page C-2 of this manual) disables the 70-volt power running to the playfield. To allow coils to function in the **Ball Trough Test**, you must either close the coin door or pull the safety interlock switch’s actuator out (it will “click” and lock in place). When you close the coin door, the interlock switch actuator will be pushed back into its normal (unlocked) position.

To exit the **Ball Trough Test** at any time, press the **Back/Escape** button.



Figure B16. Ball Trough Test screen.





## Theater Magnet Test

When you enter the Theater Magnet **Test**, the LCD monitor will display the screen shown in figure B17. The left square on the screen represents the state of the entrance opto for the Theater (in the upper center of the playfield). This square turns green when a ball is shot into the Theater (breaking the opto pair's infrared light beam). The middle square represents the state of Theater Magnet. This square turns red when the Theater Magnet is activated. The square on the right turns light tan when the Theater Magnet is cooling down (this typically occurs immediately after a magnet activation). A transparent square indicates an inactive opto, no magnet activation, or no cooling taking place.

To test the Theater Magnet, roll a ball up into the Theater. The switch should register the ball entering the Theater and the magnet should catch the ball. The magnet should then release the ball, pause, then activate again, "tossing" the ball through the tunnel behind the Theater, up into the pop bumpers or around the top of the right orbit, to the upper right flipper.

You can adjust the length of the pause/delay at the top of the screen. To make a change, press the **Enter** button, then use the **Up/+** and **Down/-** buttons to specify a new numeric value (positive or negative). Once you're finished adjusting the delay, press the **Enter** button once again to apply the change. To cancel the change, press the **Back/Escape** button. Try several delay values to find the one that works best for your game setup.

Note: When the coin door is opened, the game's safety interlock switch (the upper switch on item 14, page C-2 of this manual) disables the 70-volt power running to the playfield. To allow coils to function in the **Theater Magnet Test**, you must either close the coin door or pull the safety interlock switch's actuator out (it will "click" and lock in place). When you close the coin door, the interlock switch actuator will be pushed back into its normal (unlocked) position.

To exit the **Theater Magnet Test** at any time, press the **Back/Escape** button.



Figure B17. Theater Magnet Test screen.





## Statue (Betty) Diverter Test

When you enter the Statue (**Betty**) **Diverter Test**, the LCD monitor will display the screen shown in figure B18. The upper square on the screen represents the state of the microswitch on the Robot Betty Assembly (in the upper right corner of the playfield). This switch is activated when Betty's diverter arm is in the down position. The lower square represents the state of the **Enter** button. A green square indicates an activated microswitch (or a button being pressed); a transparent square indicates an inactive microswitch (or no button being pressed).

You can use the **Enter** button to activate Betty's motor. Running the motor will change the position of Betty's diverter arm and allow you to test the functionality of the microswitch.

To exit the **Statue Diverter Test** at any time, press the **Back/Escape** button.

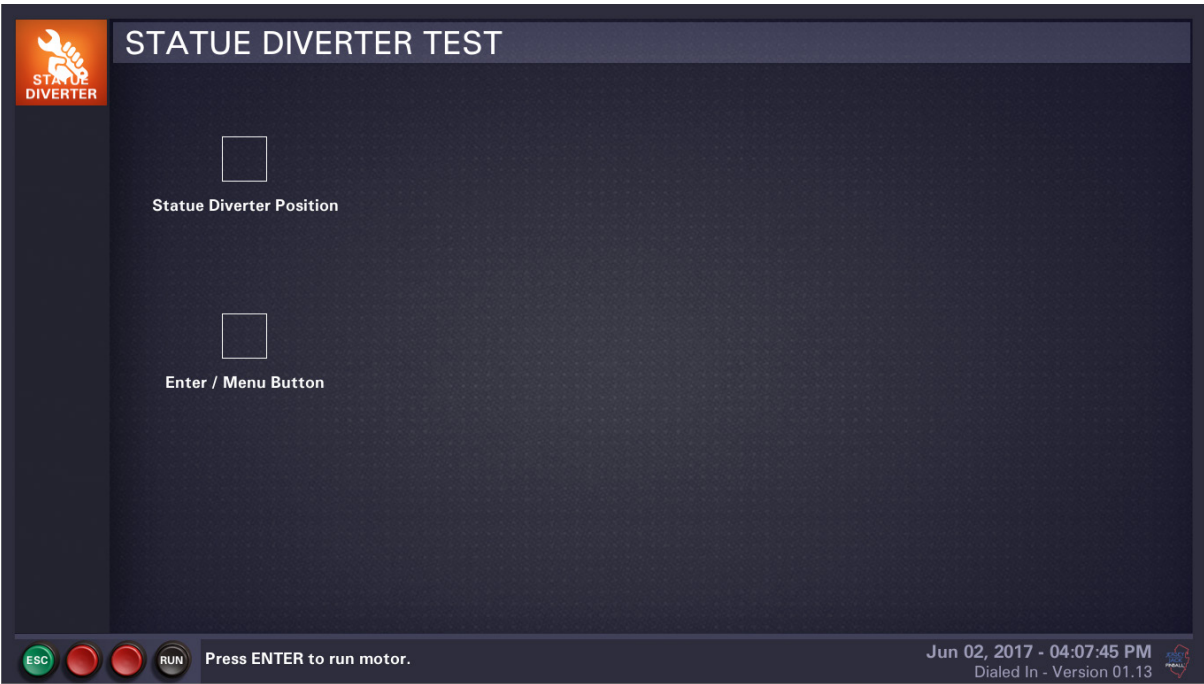


Figure B18. Statue (Betty) Diverter Test screen.



## Moving Target Test

When you enter the **Moving Target Test**, the LCD monitor will display the screen shown in figure B19. The upper squares on the screen represent the states of the two U-shaped opto switches on the Moving Target Assembly (in the center of the playfield). One opto switch indicates that the target is all the way to the player's left (home); the other indicates the target is all the way to the player's right (away). The lower square represents the state of the **Enter** button. A green square indicates an activated opto switch (or a button being pressed); a transparent square indicates an inactive opto switch (or no button being pressed).

You can use the **Enter** button to activate the moving target motor. Running the motor will change the position of the moving target and allow you to test the functionality of the opto switches.

To exit the **Moving Target Test** at any time, press the **Back/Escape** button.

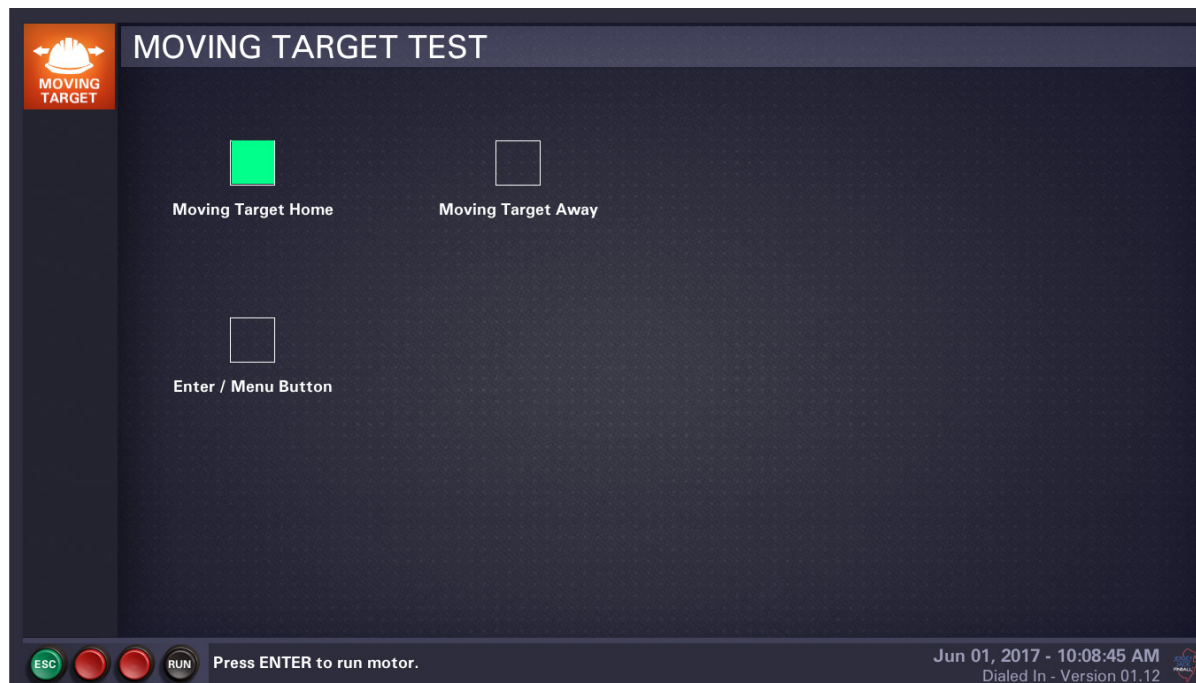
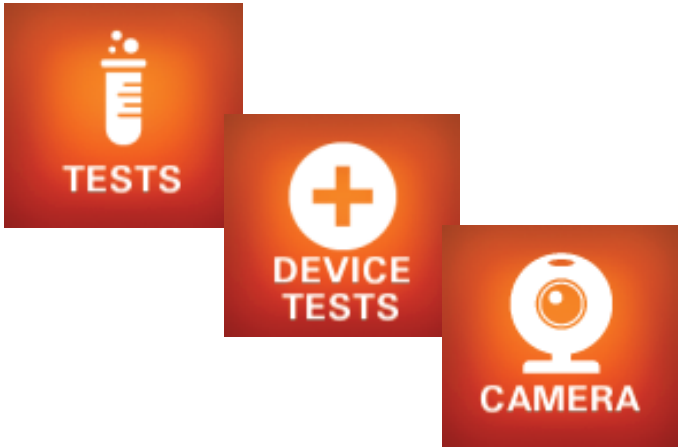


Figure B19. Moving Target Test screen.



# Camera Test

When you enter the **Camera Test**, the LCD monitor will display a screen similar to that shown in figure B20. A large window on the left side of the screen will show what the game's camera (in the lower, center area of the backbox) currently "sees". Within that window, a green box will be placed around (what the software determines to be) the "best match" for a person's face. Red boxes will be placed around (what the software determines to be) "less accurate" face matches. You can wave your hand around to test motion detection. When the software recognizes your hand moving, the words "MOTION DETECTED" will appear, in green, in the center of the screen.

You select a sensitivity control to adjust (motion tracking or face recognition) with the **Up/+** and **Down/-** buttons. The currently selected control will be highlighted in white text. To make a change, press the **Enter** button, then use the **Up/+** and **Down/-** buttons to specify a new numeric value. You are providing relative sensitivity levels for the software to use to recognize faces and detect motion. The game software will apply these levels to the camera image data during game play in order to implement special features. Once you're finished adjusting a numerical value, press the **Enter** button once again to apply the change. To cancel the change, press the **Back/Escape** button.

To exit the **Camera Test** at any time, press the **Back/Escape** button.

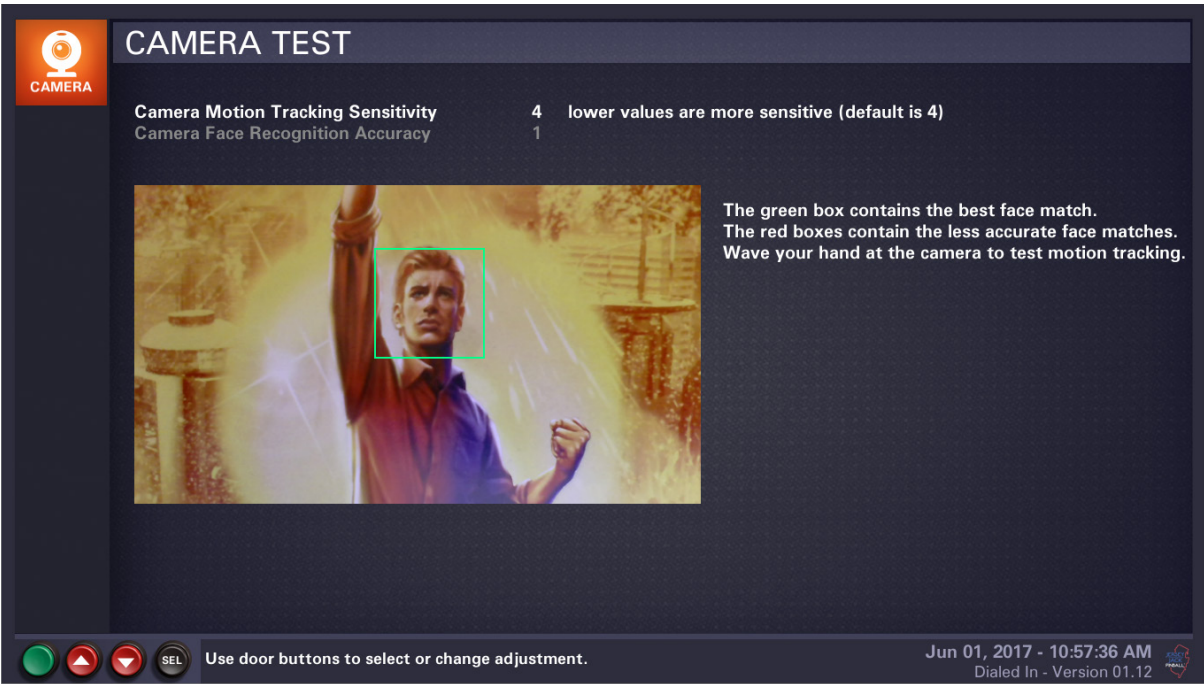


Figure B20. Camera Test screen.



## Trap Door Test

When you enter the **Trap Door Test**, the LCD monitor will display the screen shown in figure B21. The rectangle on the screen represents the current state of the trap door mechanism (on the far left side of the playfield). When the trap door mechanism is in the open position, the rectangle is light tan; when the trap door is in the closed position, the rectangle is dark tan; a red rectangle represents a "broken" trap door mechanism (it failed to respond to several attempts to open it). For reference, corresponding coil numbers and matrixed switch numbers are shown under each square. Green text indicates the coil or switch is active; white text indicates that the coil or switch is inactive.

You can use the **Enter** button to toggle the status (open or closed) of the trap door mechanism. When you open the trap door, a new rectangle appears on top of the first one. This rectangle turns blue when the switch underneath/inside the trap door mechanism is closed; when the switch is open, the rectangle remains transparent.

Note: When the coin door is opened, the game's safety interlock switch (the upper switch on item 14, page C-2 of this manual) disables the 70-volt power running to the playfield. To allow coils to function in the **Trap Door Test**, you must either close the coin door or pull the safety interlock switch's actuator out (it will "click" and lock in place). When you close the coin door, the interlock switch actuator will be pushed back into its normal (unlocked) position.

To exit the **Trap Door Test** at any time, press the **Back/Escape** button.

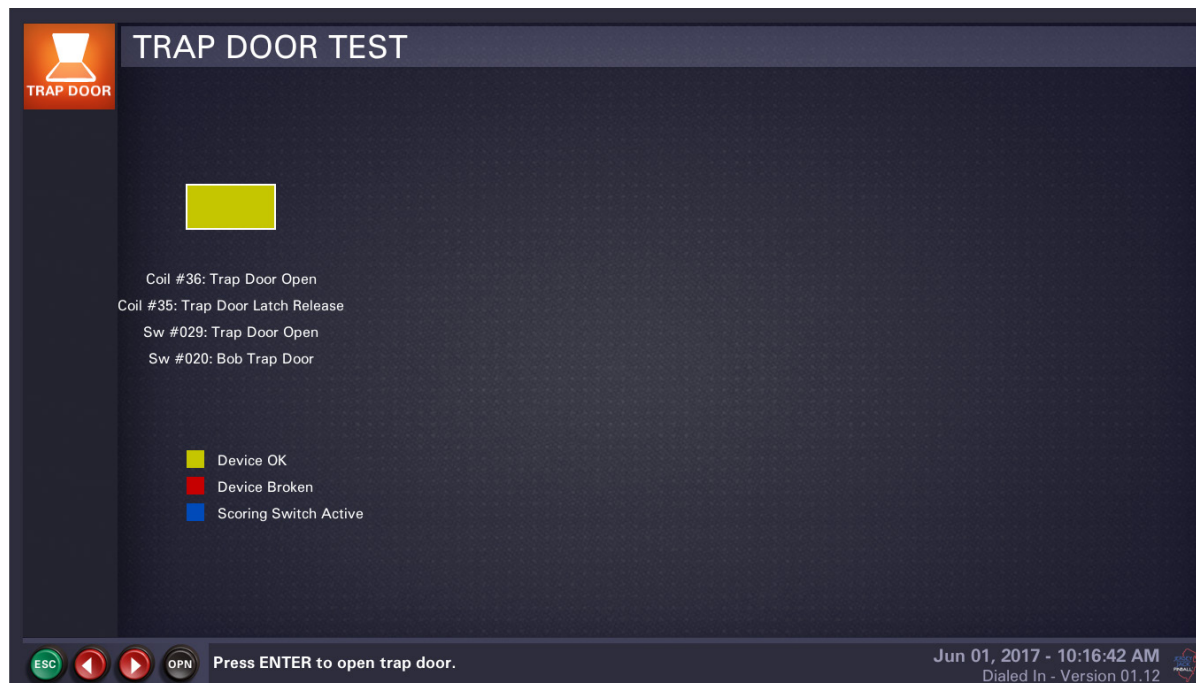


Figure B21. Trap Door Test screen.



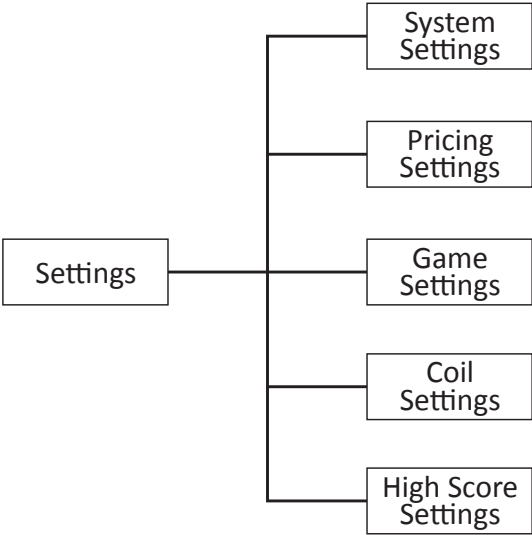
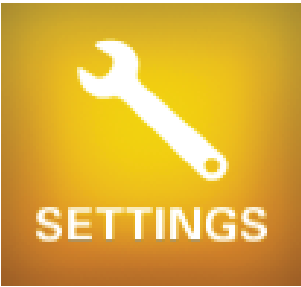


Figure B22. Settings menu tree.

## B.3 Settings

The **Settings** menu (see figure B22 for an outline) allows the user to adjust system, pricing, game, coil and high score settings, to personalize the game (home use) or optimally configure it for a location or route (commercial use).

**System Settings** - adjust settings for high-level game controls such as balls per game, ball save time, tilt warnings, audio levels, match percentage and replay/scoring awards.

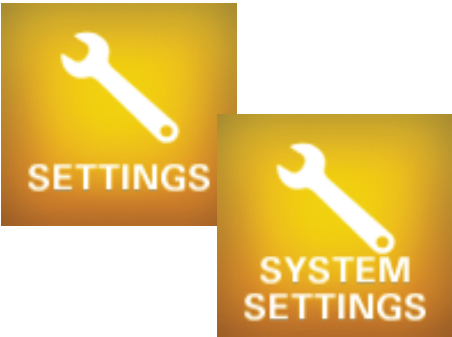
**Pricing Settings** - adjust settings for pricing controls such as free play, accepted currency, coin door specifics and pricing tiers/levels.

**Game Settings** - adjust game-specific settings such as BOB difficulty, Kickback & Big Bang relight frequency, and Mode, Bonus & Multiball difficulties.

**Coil Settings** - adjust kicking strength for virtually every coil in the game.

**High Score Settings** - adjust settings related to high scores such as whether the game will record them, what the award for high score will be, multiple player initials and default high scores.

# System Settings



When you enter the **System Settings** menu, the LCD monitor will display the screen shown in figure B23. Settings that have been changed from factory defaults are displayed in red. Default settings are displayed in green, but only when a menu item is highlighted. Menu items that cannot be altered are displayed in gray. You can scroll through menu items with the **Up/+** and **Down/-** buttons; press **Enter** to select an item you would like to change. Use the **Up/+** and **Down/-** buttons to alter the highlighted data value, then press **Enter** to accept the new value. Press **Back/Escape** to escape from a selected menu item without saving changes. NOTE: Pindemption® settings are only available in a Dialed In game with a Pindemption®-enabled security dongle.

To exit the **System Settings** menu at any time, press the **Back/Escape** button.

### GENERAL

**Game Play Type:** specify how the game will end: after a designated number of balls played or a designated amount of time. **<Pindemption® setting>**

*BALLS:* traditional style of pinball play                      Default: BALLS

*TIME:* timed pinball play

**Ball Play Type:** specify how extra balls will be played during a game. With the BALLS IN PLAY option, extra balls will be played immediately after the ball on which they are earned. With the BALLS IN RESERVE option, earned extra balls will be held until the end of the game, with players continuing to take turns playing one ball at a time until all balls in reserve have been played.

*BALLS IN PLAY:* extra ball played immediately                      Default: BALLS IN PLAY

*BALLS IN RESERVE:* extra ball held in reserve, to play later

**Balls Per Game:** specify the number of balls each player gets to play within a single game.

*1-5:* 1-5 balls                      Default: 3 balls

**Time Per Game:** specify how long a game will last. **<Pindemption® setting>**

*30-300:* 30-300 seconds                      Default: 45 seconds

**Timed Game Over Type:** specify how a timed game will end. **<Pindemption® setting>**

*INSTANT DEATH:* game ends when timer reaches zero.                      Default: INSTANT DEATH

SUDDEN DEATH: game ends when timer reaches zero and the ball in play drains.

SUDDEN TIMER: game ends when timer reaches zero and the Sudden Death Timer reaches zero.



Figure B23. System Settings screen.



EXTRA BALLS

Game Extra Ball Limit: specify the maximum number of extra balls that can be won in any game.

- 1-9: 1-9 extra balls Default: Unlimited
- Unlimited: unlimited extra balls
- No Extra Balls: no extra balls

Stacked Extra Ball Limit: specify the maximum number of extra balls that can be stacked by a player at any time during a game.

- 1-9: 1-9 extra balls Default: Unlimited
- Unlimited: unlimited extra balls
- No Extra Balls: no extra balls

TILT

Tilt Warning Type: specify whether tilt warnings accumulate per ball or per game.

- PER BALL: accumulate per ball Default: PER GAME
- PER GAME: accumulate per game

Tilt Warnings: specify the number of warnings issued before the game tilts.

- 0-10: 0-10 warnings Default: 2 warnings

SOUND

Master Volume: specify the overall volume level for the game.

- 0-50: 0-50 level Default: 26 level

Headphone Volume: specify the headphone volume level for the game.

- 0-50: 0-50 level Default: 26 level

Front Panel Master Volume: specify whether the cabinet front controls will change the master volume level or not.

- ON: controls change master volume Default: ON
- OFF: controls do not change master volume

Volume Effect Intensity: specify the intensity of volume effects (multiplies volume units).

- 1-5: 1-5 Default: 1

Maximum Volume Effect: specify how extra-loud the game can get, in volume units.

- 1-20: 0-50 level Default: 5 units
- OFF: not used

Music Mix: specify the gain for the music in the game.

- 0-150: 0-150 Default: 75

Speech Mix: specify the gain for the speech sounds in the game.

- 0-150: 0-150 Default: 75

Fanfare Mix: specify the gain for the fanfares in the game.

- 0-150: 0-150 Default: 75

FX Mix: specify the gain for the sound effects (FX) in the game.

- 0-150: 0-150 Default: 75

Attract Mode Sounds: specify whether the game will play sounds during attract mode or not.

- ON: play sounds Default: ON
- OFF: do not play sounds

Attract Mode Music: specify whether the game will play music during attract mode or not.

- ON: play music Default: OFF
- OFF: do not play music

Show OS Sound Debug: specify whether to display the OS Sound Debug Panel or not.

- ON: display the panel Default: OFF
- OFF: do not display the panel





Two yellow square buttons with rounded corners. The left button features a white wrench icon and the text 'SETTINGS' in white capital letters. The right button features a white wrench icon and the text 'PRICING SETTINGS' in white capital letters.

To exit the **Pricing Settings** menu at any time, press the **Back/Escape** button.

*YES*: play for free  
*NO*: require currency for play

<i>Dollars (\$):</i>	Dollars
<i>Euros (€):</i>	Euros
<i>Pounds (£):</i>	Pounds
<i>Yen (¥):</i>	Yen
<i>Krone (kr):</i>	Krone
<i>Krona (kr):</i>	Krona
<i>Coins:</i>	coins
<i>Tokens:</i>	tokens
<i>Swipes:</i>	card swipes through a reader
<i>Bills:</i>	bills through a bill acceptor

\$0.00: Unlimited dollar amount Default: \$0.00  
\$0.01-\$100,000.00: \$0.01-\$100,000.00

0: Unlimited credits Default: 0  
1-100: 1-100 credits





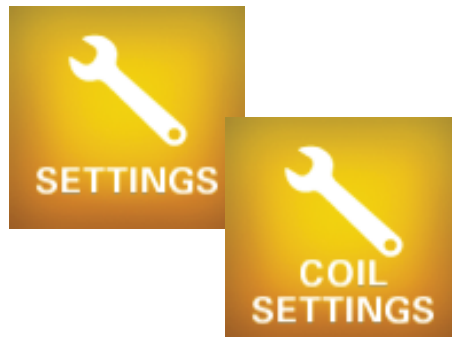












## Coil Settings

When you enter the **Coil Settings** menu, the LCD monitor will display the screen shown in figure B26. Settings that have been changed from factory defaults are displayed in red. Default settings are displayed in green, but only when a menu item is highlighted. Menu items that cannot be altered are displayed in gray. You can scroll through menu items with the **Up/+** and **Down/-** buttons; press **Enter** to select an item you would like to change. Use the **Up/+** and **Down/-** buttons to alter the highlighted data value, then press **Enter** to accept the new value. Press **Back/Escape** to escape from a selected menu item without saving changes.

From the **Coil Settings** menu, virtually every single coil strength in the game is adjustable. This feature allows the owner/operator to fine tune game play and operation for specific uses.

**CAUTION:** Be careful when adjusting the values in this menu; making certain coils too strong can result in breakage or excessive wear on certain parts of the game.

To exit the **Coil Settings** menu at any time, press the **Back/Escape** button.

## TROUGH

**Trough VUK Strength:** specify the firing strength for the trough VUK coil.

1-32: 1-32 firing strength Default: 14

**Auto-Launch Strength:** specify the firing strength for the ball Auto-Launch coil.

1-32: 1-32 firing strength Default: 20

## GENERAL

**Maximum Shaker Strength:** specify the strength for the shaker motor.

*OFF*: disable the shaker motor Default: MEDIUM

*LOW*: low strength

*MEDIUM*: medium strength

*HIGH*: high strength

*EXTREME*: extreme strength (adjust to EXTREME at your own risk!)



**Figure B26. Coil Settings screen.**



## MAGNETS

**Multiball Magnet Behavior:** specify the strength/frequency for the three under-PF magnets.

*OFF*: disable the three under-PF magnets      Default: EASY

*EASY*: low magnet strength/frequency

*MEDIUM*: medium magnet strength/frequency

DIFFICULT: highest magnet strength/frequency

## FLIPPERS

**Left Flipper Strength:** specify the firing strength for the left flipper power coil.

1-32: 1-32 firing strength Default: 21

**Right Flipper Strength:** specify the firing strength for the right flipper power coil.

1-32: 1-32 firing strength Default: 21

**Upper Right Flipper Strength:** specify the firing strength for the upper right flipper power coil.

1-32: 1-32 firing strength Default: 21

## BUMPERS

**Left Bumper Strength:** specify the firing time for the left pop bumper coil.

1-24: 1-24 milliseconds Default: 12 milliseconds

**Right Bumper Strength:** specify the firing time for the right pop bumper coil.

1-24: 1-24 milliseconds Default: 12 milliseconds

**Lower Bumper Strength:** specify the firing time for the lower pop bumper coil.

1-24: 1-24 milliseconds Default: 11 milliseconds

## SLINGSHOTS

**Left Slingshot Strength:** specify the firing time for the left slingshot coil.

1-45: 1-45 milliseconds Default: 22 milliseconds

**Right Slingshot Strength:** specify the firing time for the right slingshot coil.

1-45: 1-45 milliseconds      Default: 22 milliseconds

## KICKERS/SCOOPS

**Skill Shot Big Kick Strength:** specify the firing strength for the skill shot big kick coil.

1-32: 1-32 firing strength Default: 20

**Smartphone Scoop Strength:** specify the firing strength for the Smartphone scoop coil.

1-32: 1-32 firing strength Default: 20

## RAMP LOCKUP

**Lockup Kick Time:** specify the amount of time (in milliseconds) to hold the ramp lock release open to release a ball from the lock.

150-500: 150-500 milliseconds      Default: 250 milliseconds

## KICKBACK

**Kickback Strength:** specify the firing time (in milliseconds) for the kickback coil.

6-32: 6-32 milliseconds Default: 6 milliseconds

**Kickback Delay:** specify the amount of time (in milliseconds) to delay kicking the kickback coil.

0-60: 0-60 milliseconds Default: 40 milliseconds

Two yellow square buttons with rounded corners. The left button features a white wrench icon and the text 'SETTINGS' in white capital letters. The right button features a white wrench icon and the text 'HIGH SCORE SETTINGS' in white capital letters.

To exit the **High Score Settings** menu at any time, press the **Back/Escape** button.

**Armageddon Champ Credits:** specify the number of credits awarded for Armageddon Champ.  
0-10: 0-10 credits Default: 0 credits

**Combo Champ Credits:** specify the number of credits awarded for Combo Champ.  
*0-10:* 0-10 credits Default: 0 credits

**Keep High Scores:** specify whether the game will maintain a table of high scores or not.  
*ON:* record high scores Default: ON  
*OFF:* do not record high scores

**High Score Award:** specify the award for achieving a high score during a game.  
*FREE GAME:* a free game Default: FREE GAME  
*AUDIT:* a predefined number of points

**High Score Name Length:** specify the maximum number of characters a player can enter for H.S.T.D..  
3, 11: 3 or 11 characters Default: 11

**HIGH SCORE SETTINGS**

**GAME FEATURES HIGH SCORES**

Armageddon Champ Credits	0	# of credits for Armageddon Champion
Combo Champ Credits	0	

**REGULAR HIGH SCORES**

Keep High Scores	ON	
High Score Award	FREE GAME	
High Score Name Length	11	
Multiple Initials/Player	ON	
H.S.T.D. Reset Every	OFF	
Champion Credits	1	
H.S.T.D. 1 Credits	1	
H.S.T.D. 2 Credits	1	
H.S.T.D. 3 Credits	1	
H.S.T.D. 4 Credits	1	
H.S.T.D. 5 Credits	0	
H.S.T.D. 6 Credits	0	
H.S.T.D. 7 Credits	0	
H.S.T.D. 8 Credits	0	
Default Grand Champ	500000	
Default H.S.T.D 1	400000	
Default H.S.T.D 2	300000	
Default H.S.T.D 3	250000	
Default H.S.T.D 4	200000	
Default H.S.T.D 5	150000	

**Legend:** GREEN = default, RED = changed, GRAY = disabled

**Timestamp:** Jun 01, 2017 - 10:24:26 AM  
Dialed In - Version 01.12

## The Dialed In Menu System



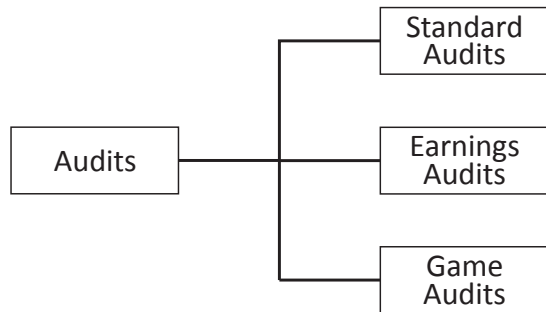


Figure B28. Audits menu tree.

## B.4 Audits

The **Audits** menu (see figure B28 for an outline) allows the user to view, monitor and/or track game usage and earnings over a specific time period (since audits were last cleared and over the lifetime of the game).

**Standard Audits** - view game-related totals such as free plays, 1-, 2-, 3- & 4-player games started, extra balls, replays, matches, etc.

**Earnings Audits** - view totals for paid credits, free plays, service credits, pricing tier purchases and coins accepted in each slot.

**Game Audits** - view totals for various shots made (targets hit or switches closed) and modes started and/or completed in the game.



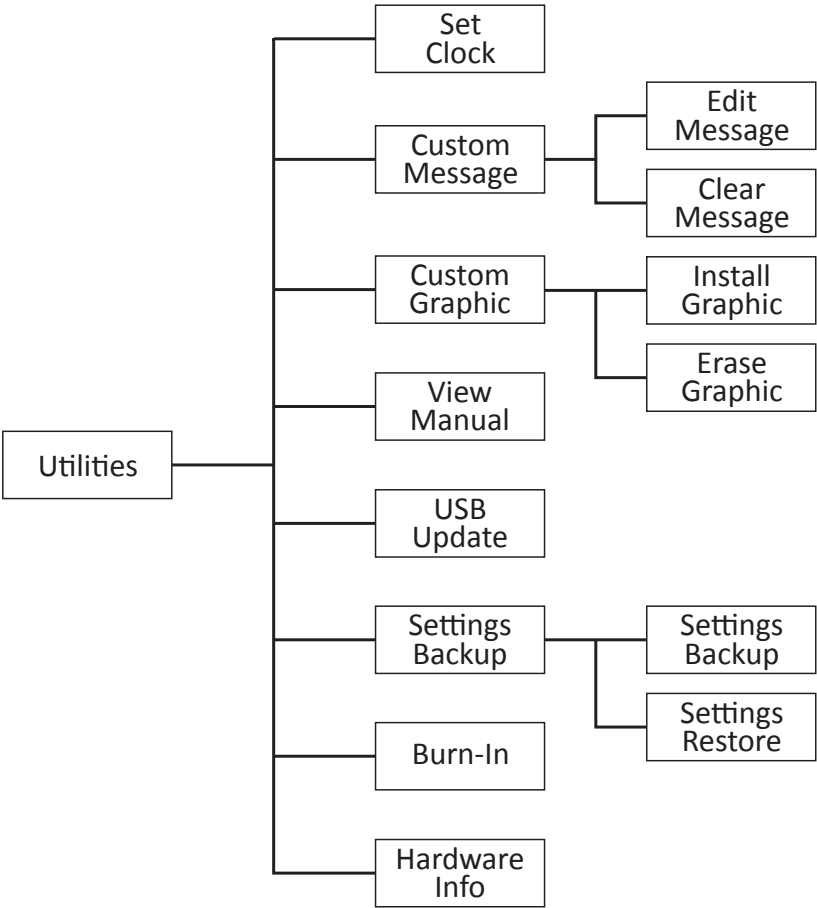


Figure B29. Utilities menu tree.

## B.5 Utilities

The **Utilities** menu (see figure B29 for an outline) allows the user to manage and maintain the game by setting the internal clock, entering messages/graphics and through commonly-used routines like burn-in and software update. There are also utility screens to save/restore settings and view this manual and/or game hardware information.

**Set Clock** - adjust the system date and time.

**Custom Message** - enter/change a message for the game to display in attract mode (**Edit Message**) or clear an existing message from the game (**Clear Message**).

**Custom Graphic** - upload/select (**Install Graphic**) an image for the game to display in attract mode. Erase uploaded graphics with the **Erase Graphic** utility.

**View Manual** - display/navigate the PDF version of the Dialed In manual on the game’s LCD screen.

**USB Update** - update the game’s software via a USB memory stick. Note: The update must be downloaded from the JJP® support website (<http://www.jerseyjackpinball.com/game-specific-downloads/>), using a separate computer.

**Settings Backup** - backup (**Settings Backup**) and/or restore (**Settings Restore**) settings, audits, replay information and custom message for the game.

**Burn-In** - run a preset routine to exercise all of the critical devices in the game, repeatedly, to test for reliable, long-term system operation.

**Hardware Info** - view game hardware characteristics such as game serial number, firmware revision levels, motherboard type, display Information, available RAM, processor speed & solid state disk size.



## Set Clock

When you enter the **Set Clock** utility, the LCD monitor will display the screen shown in figure B30. To maneuver to the portion of the display that requires adjustment, use the **Back/Escape** (left) and **Enter** (right) buttons. Use the **Up/+** and **Down/-** buttons to alter the highlighted value, then press the **Start** button to save the time and date, as displayed on the screen.

To exit the **Set Clock** utility, move the cursor to the position shown in Figure B30 (far left), then press the **Back/Escape** button. Note: The **Start** button moves the cursor to this position after saving the time/date.



Figure B30. Set Clock utility screen.



## Edit Message

Use the **Custom Message** utility to enter a message that will be displayed on the LCD monitor, periodically, during the game’s attract mode. The message is entered or changed using the **Edit Message** utility.

When you enter the **Edit Message** utility, the LCD monitor will display the screen shown in figure B31. To move the cursor around in the message, use the **Back/Escape** (move left) and **Enter** (move right) buttons. Use the **Up/+** and **Down/-** buttons to change the highlighted letter, then press the **Start** button to save your custom message, as displayed on the screen.

To exit the **Edit Message** utility, move the cursor to the position shown in Figure B31 (the upper left hand corner), then press the **Back/Escape** button. Note: The **Start** button moves the cursor to this position after saving the message.



Figure B31. Edit Message utility screen.



## Clear Message

Use the **Clear Message** utility to delete a previously entered custom message.

When you enter the **Clear Message** utility, the LCD monitor will display the screen shown in figure B32. To clear the current custom message, press the **Enter** button. You will be prompted to hit the **Start** button to confirm and complete the operation.

To exit the **Clear Message** utility at any time, press the **Back/Escape** button.

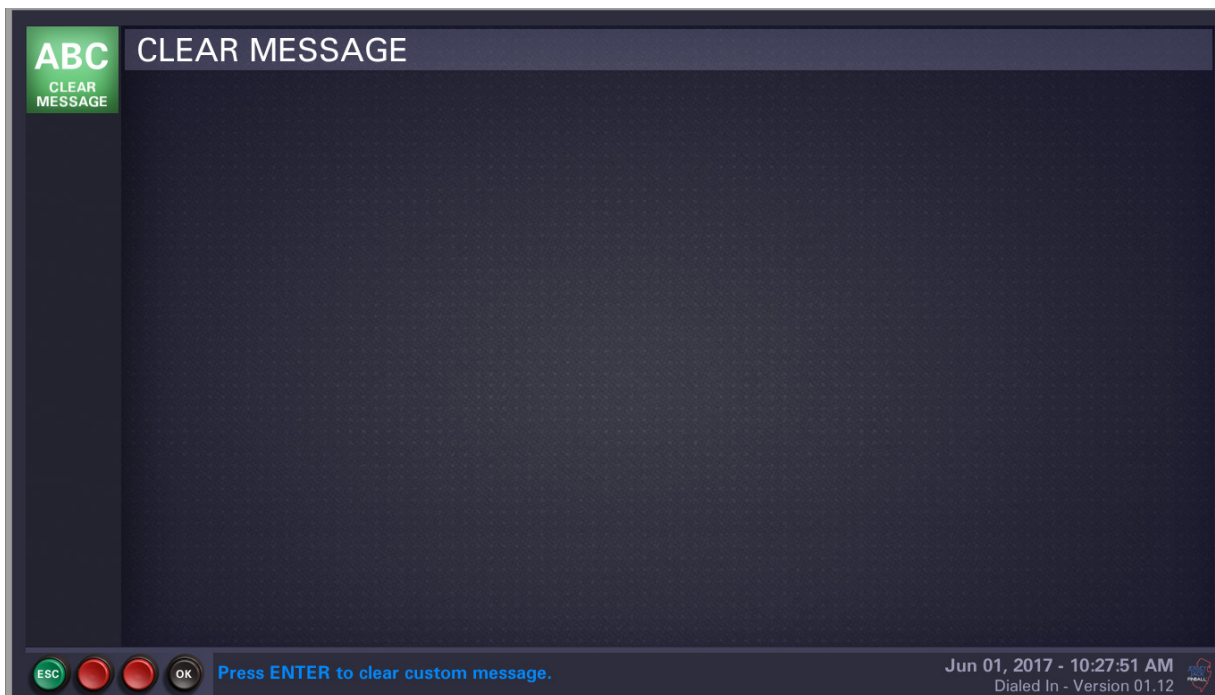


Figure B32. Clear Message utility screen.





## Install Graphic

Use the **Custom Graphic** utility to install an image that will be displayed on the LCD monitor, periodically, during the game’s attract mode. The custom image is installed using the **Install Graphic** utility.

Note: The image must be loaded onto a USB memory stick, using a separate computer. It must be in PNG or JPG format and under 2MB in size. Create a folder named “pinballimages” in the root directory of the USB stick, then copy your graphic(s) into the folder. Power up the game, open the coin door, and use the diagnostics buttons to enter the **Install Graphic** utility; the LCD monitor will display the screen shown on the left in figure B33.

Locate the end of the USB extension cable, just inside the open coin door. Fully insert the USB stick into the connector at the end of the cable (if your USB stick is equipped with an “in-use” light, it will illuminate). The screen on the right in figure B33 will come up automatically, showing a listing of the available graphics in your USB stick’s “pinballimages” folder.

Use the **Up/+** and **Down/-** buttons to select the graphic you wish to install, then press the **Enter** button to complete the operation.

To exit the **Install Graphic** utility at any time, press the **Back/Escape** button.

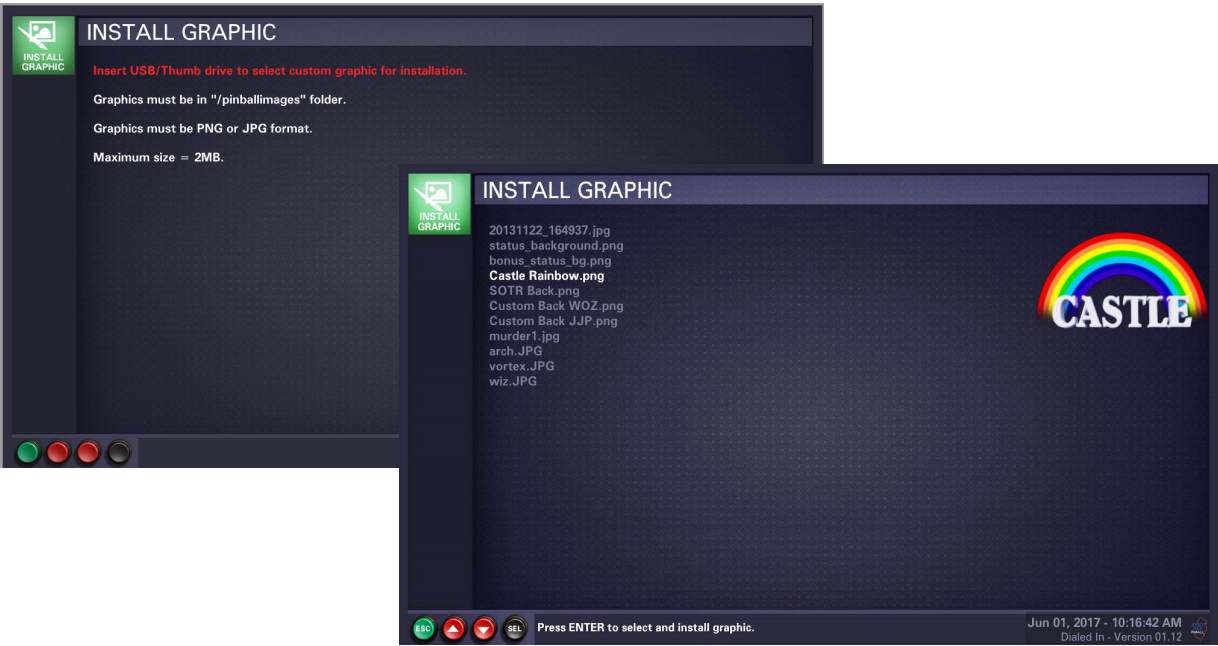
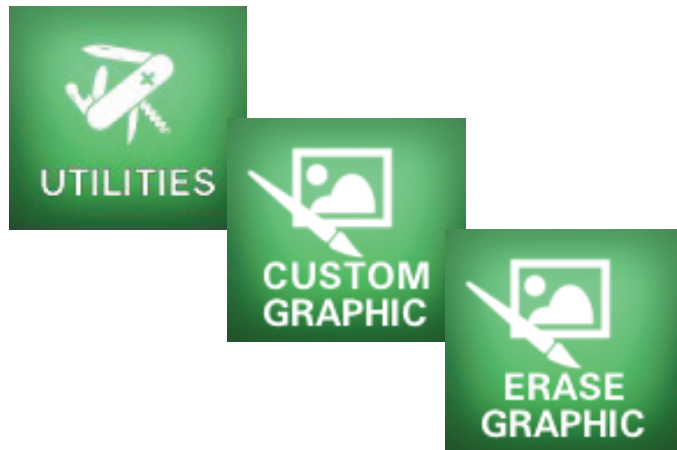


Figure B33. Install Graphic utility screens.



## Erase Graphic

Use the **Erase Graphic** utility to delete a previously installed custom graphic.

When you enter the **Erase Graphic** utility, the LCD monitor will display the screen shown in figure B34. To clear the current custom graphic, press the **Enter** button. You will be prompted to hit the **Start** button to confirm and complete the operation.

To exit the **Erase Graphic** utility at any time, press the **Back/Escape** button.

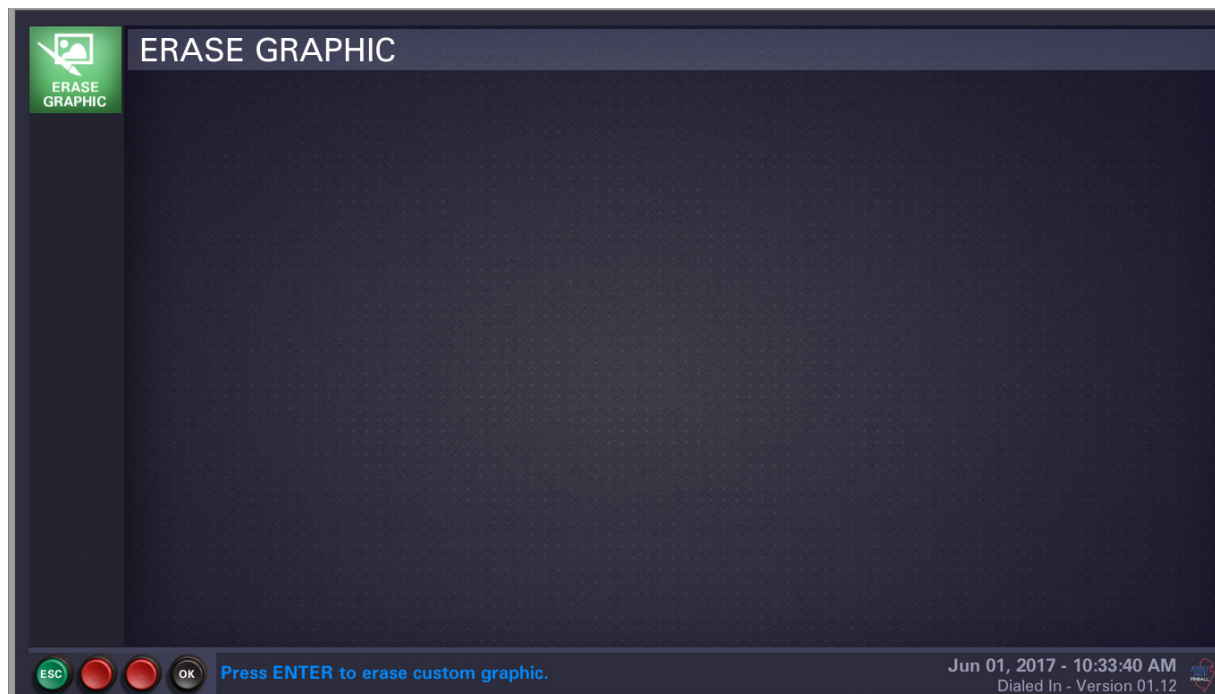
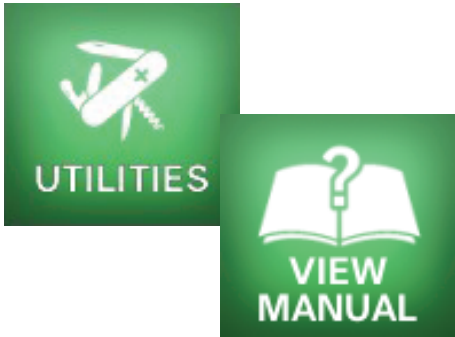


Figure B34. Erase Graphic utility screen.



## View Manual

When you enter the **View Manual** utility, the LCD monitor will display the screen shown in figure B35. To view the Dialed In Operations Manual (this document), press the **Enter** button. While viewing, use the **Up/+** and **Down/-** buttons to move from page to page; use the **Enter** button to zoom in on the current page. When zoomed in, use the **Up/+** and **Down/-** buttons to move around the current page; use the **Back/Escape** button to cancel the zoom function.

To exit the **View Manual** utility, press the **Back/Escape** button while in the viewing mode.

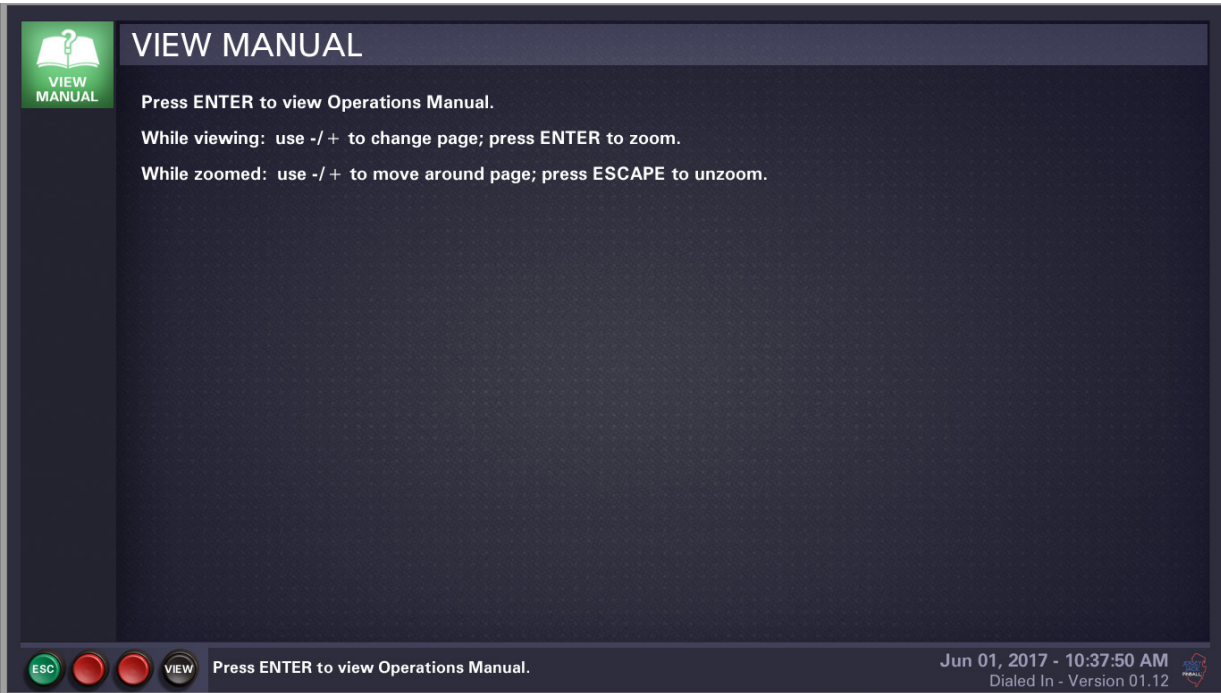


Figure B35. View Manual utility screen.



## USB Update

Use the **USB Update** utility to apply a Dialed In delta software update to your game. Note: The update must be downloaded from the JJP® support website (<http://www.jerseyjackpinball.com/game-specific-downloads/>), using a separate computer. Copy the “di\_update” folder from your computer onto an empty USB memory stick (i.e. it should be the only folder on the stick). Power up the game, open the coin door, and use the diagnostics buttons to enter the **USB Update** utility; the LCD monitor will display the screen shown in figure B36.

Locate the end of the USB extension cable, just inside the open coin door. Fully insert the USB stick into the connector at the end of the cable (if your USB stick is equipped with an “in-use” light, it will illuminate).

To attempt the USB delta update, press the **Enter** button. The game’s playfield and LCD monitor will go blank/dark for approximately 15-30 seconds (depending upon the size of the update). You can abort the update process by pressing the **Back/Escape** button. When the game and monitor come back to life, verify that the delta update installed successfully by re-entering the Dialed In Menu System. The installed software version is displayed in the lower, right hand corner of most menu system screens.

When you’re satisfied that the delta update was applied correctly, remove the USB stick from the end of the USB extension cable (there is no need to power down the game before performing this action). To exit the **USB Update** utility, press the **Back/Escape** button.

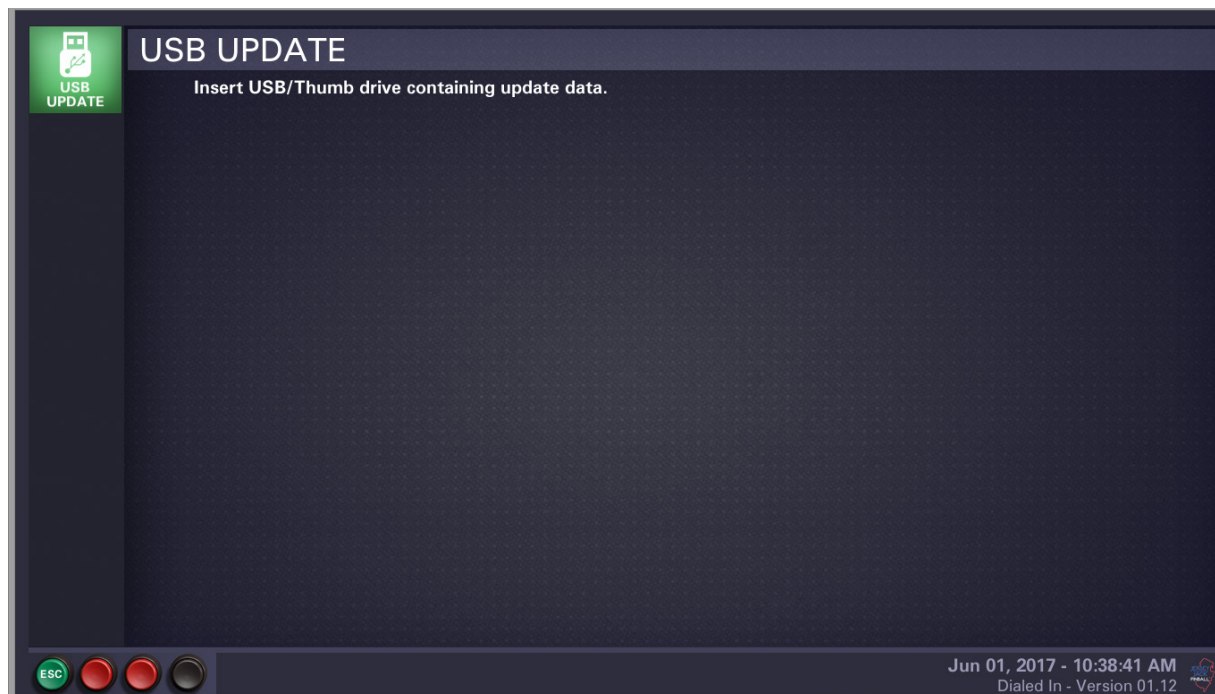


Figure B36. USB Update utility screen.





## Settings Backup

The **Settings Backup** & **Settings Restore** utilities allow you to quickly and easily backup & restore your game’s settings, audits, reports, replay information and custom message. Your settings will be stored on a USB memory stick.

When you enter the **Settings Backup** utility, the LCD monitor will display the screen shown in figure B37. Locate the end of the USB extension cable, just inside the open coin door. Fully insert a USB stick into the connector at the end of the cable (if your USB stick is equipped with an “in-use” light, it will illuminate).

Note: The saved settings file is unique to each game (allowing you to use the same USB stick to backup settings for several different games, without fear of overwriting anything). The file is also time- and date-stamped, using the game’s internal clock.

Press the **Enter** button to perform the backup. If there is an existing settings file for the game on the USB stick, you will be prompted to hit the **Start** button to confirm and complete overwriting the backup.

To exit the **Settings Backup** utility, press the **Back/Escape** button.

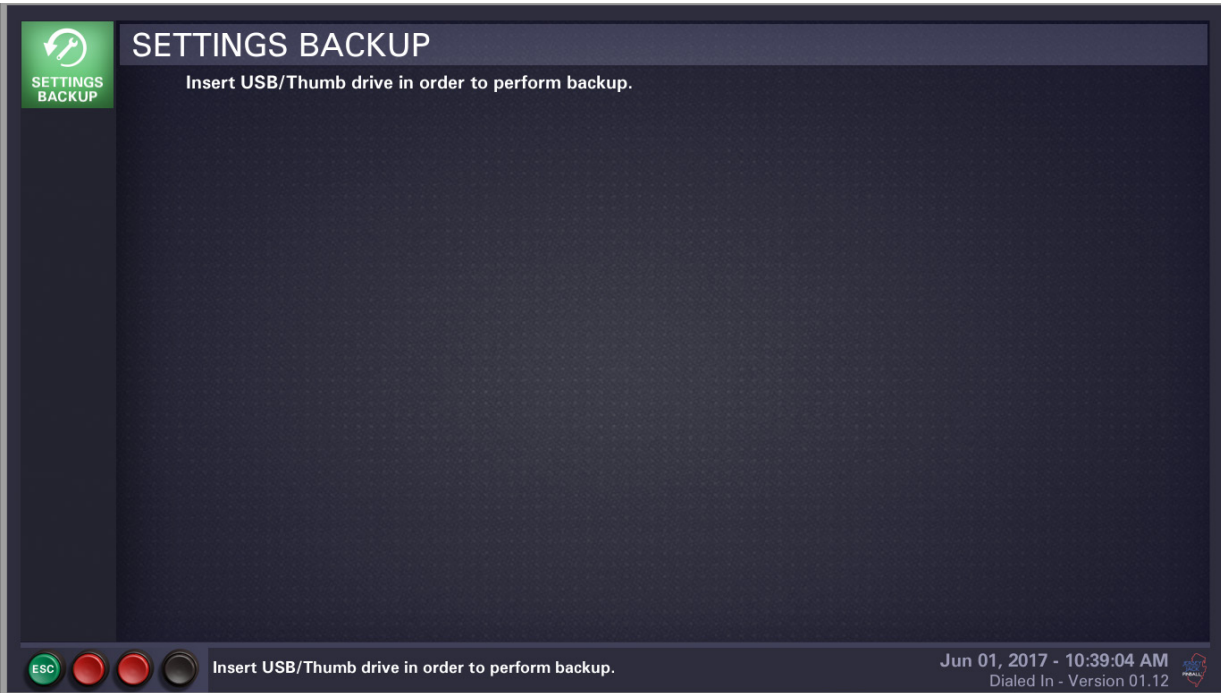


Figure B37. Settings Backup utility screen.



## Settings Restore

The **Settings Backup** & **Settings Restore** utilities allow you to quickly and easily backup & restore your game's settings, audits, reports, replay information and custom message. Your settings will be restored from a USB memory stick.

When you enter the **Settings Restore** utility, the LCD monitor will display the screen shown in figure B38. Locate the end of the USB extension cable, just inside the open coin door. Fully insert the USB stick containing your settings file into the connector at the end of the cable (if your USB stick is equipped with an "in-use" light, it will illuminate).

Note: The saved settings file is unique to each game (so you can use the same USB stick to backup settings for several different games, without fear of overwriting anything). The file is also time- and date-stamped, using the game's internal clock.

If a settings file for the game is found on the USB stick, its date and time will be displayed as shown in figure B38. Press the **Enter** button to perform the settings restore operation.

To exit the **Settings Restore** utility, press the **Back/Escape** button.

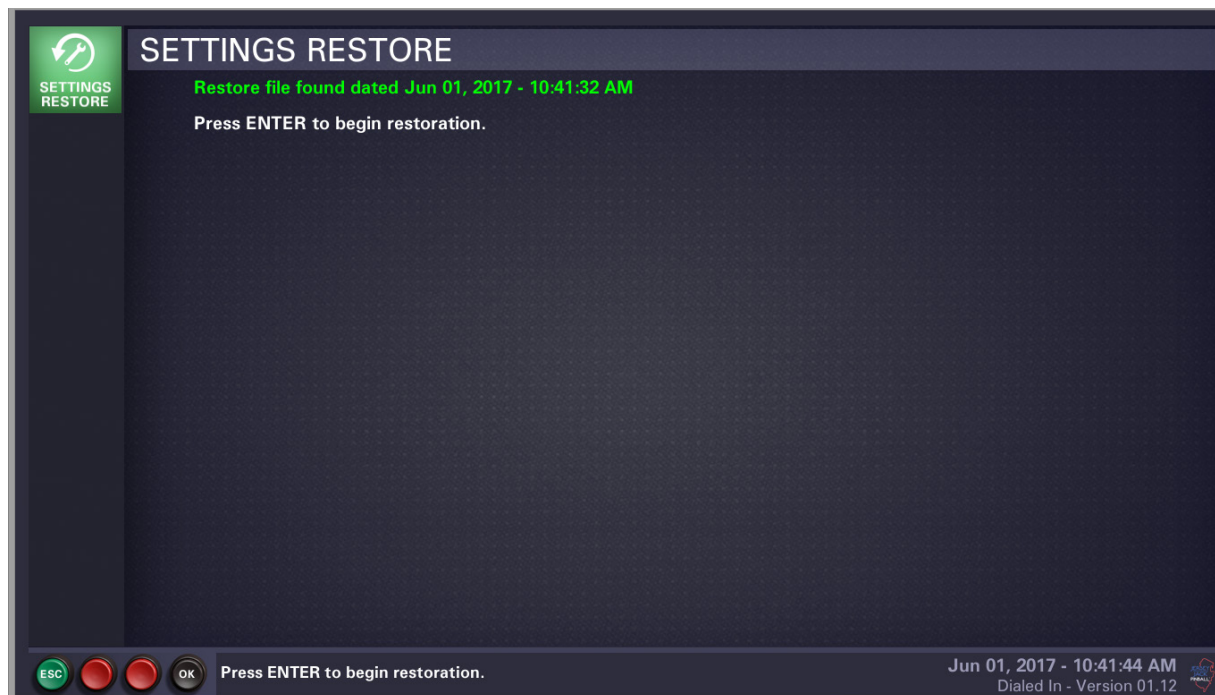


Figure B38. Settings Restore utility screen.



## Burn In

The **Burn In** utility allows you to repeatedly exercise/test virtually all of the critical devices in the Dialed In game. When you enter the utility, the game will cycle through a preset routine to simultaneously fire coils, activate magnets, run motors, flash colors on the LCD screen, play sounds, etc. - indefinitely.

To exit the **Burn In** utility at any time, press the **Back/Escape** button.



## Hardware Info

Use the **Hardware Info** utility to view your game's hardware characteristics such as serial number, firmware revision levels, motherboard type, available RAM, processor speed & solid state disk size. When you enter the **Hardware Info** utility, the LCD monitor will display the screen shown in figure B39.

To exit the **Hardware Info** utility at any time, press the **Back/Escape** button.



Figure B39. Hardware Info utility screen.



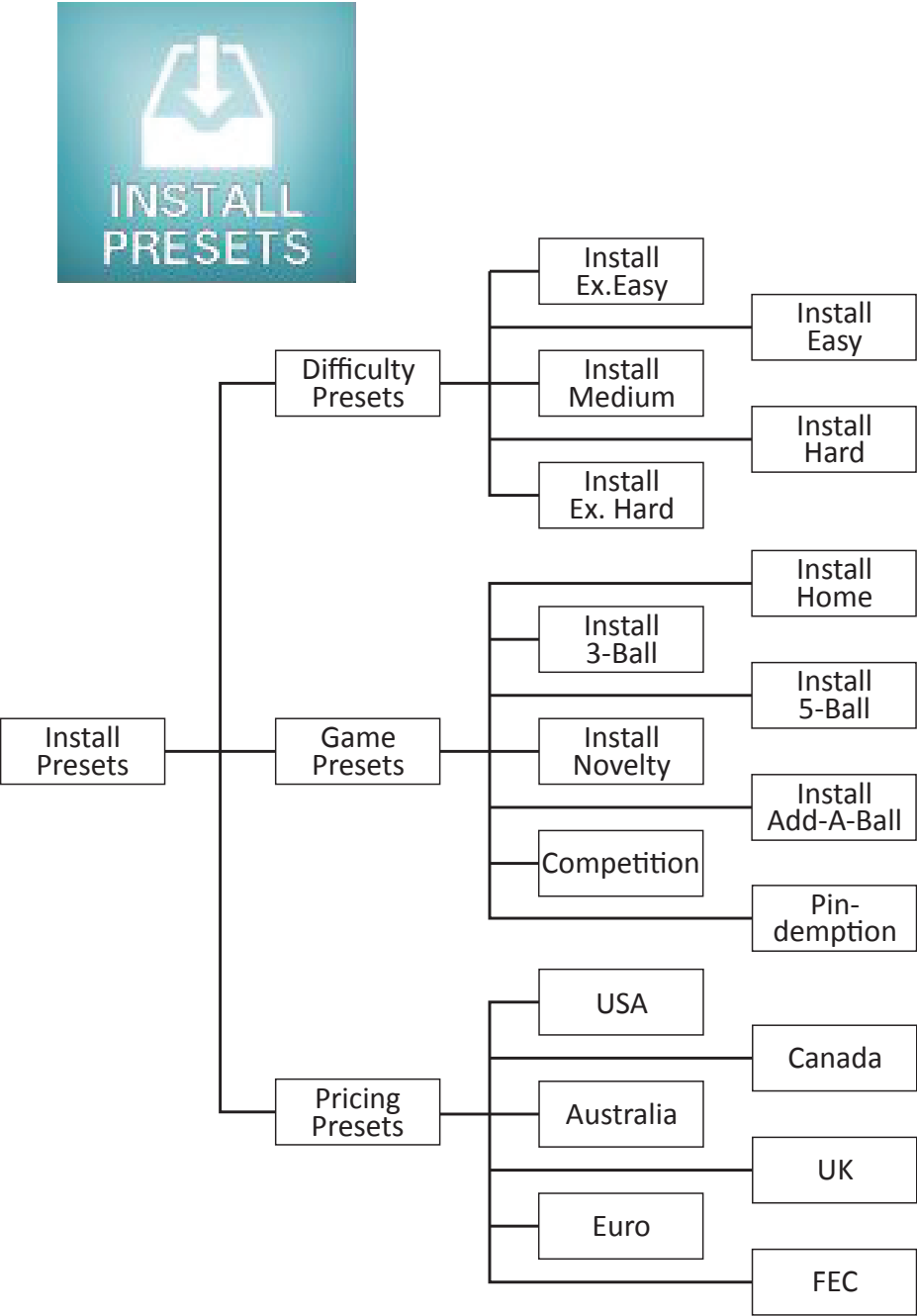


Figure B40. Install Presets menu tree.

# B.6 Install Presets

The **Install Presets** menu (see figure B40 for an outline) allows the user to quickly make *quantum*, predefined changes to game play settings (as opposed to changing settings individually, in other sub-menus).

**Difficulty Presets** - change a predefined group of game/system settings to quickly make the game easier or more difficult to play. The difficulty level options are listed in figure B40.

**Game Presets** - change a predefined group of game/system settings to quickly configure the game to play in one of the standard modes listed in figure B40.

**Pricing Presets** - change a predefined group of pricing settings to quickly configure the game to accept coinage from one of the countries listed in figure B40.

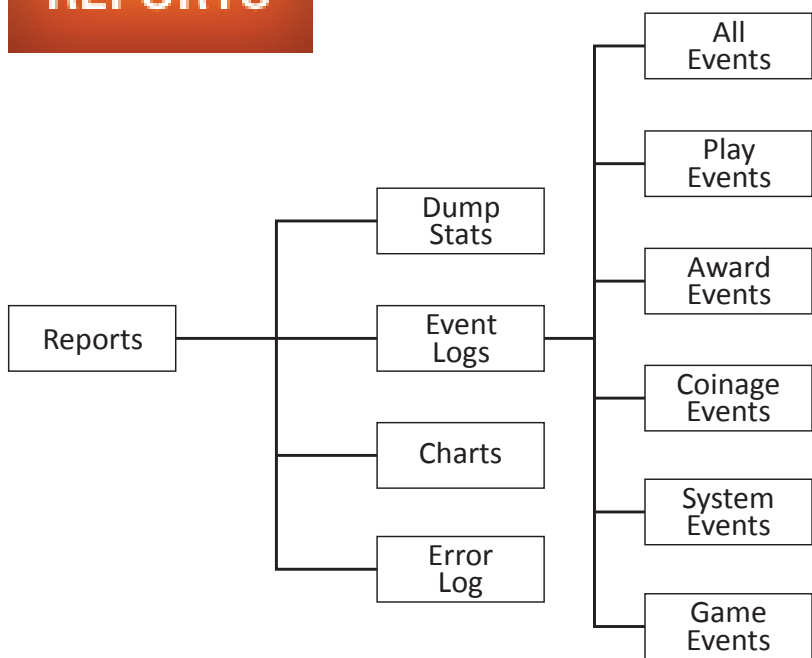
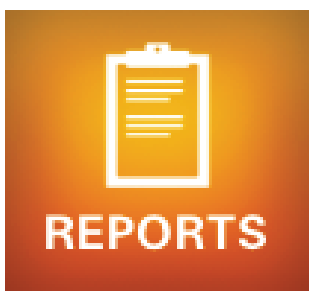


Figure B41. Reports menu tree.

## B.7 Reports

The **Reports** menu (see figure B41 for an outline) allows the user to view logs and graphs of events of interest in the game including bad switch alerts, device errors, game power-ups, service credits, game statistics, awards, etc.

**Dump Stats** - dump game statistics to a USB drive for records or detailed, offline analysis.

**Event Logs** - view logs for various system events including when the power was cycled on the game, when the game was started, when the coin door was opened, when service credits were added, when game awards were earned, etc.

**Charts** - view charts of statistics such as games played per day, game times, game scores, etc.

**Error Log** - view the contents of the game’s error log.

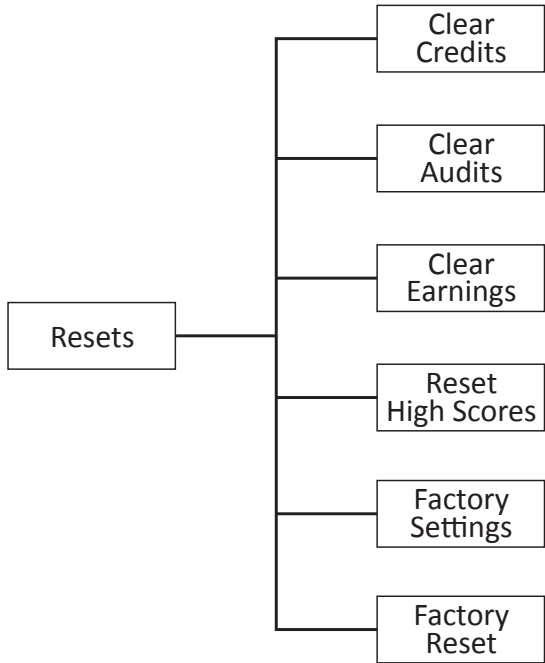


Figure B42. Resets menu tree.

## B.8 Resets

The **Resets** menu (see figure B42 for an outline) allows the user to quickly clear game audits/earnings information and high scores from a single menu.

**Clear Credits** - clear credits from the game.

**Clear Audits** - reset audits data.

**Clear Earnings** - reset earnings data.

**Reset High Scores** - reset high scores to default values (see **High Score Settings** in Section B.3).

**Factory Settings** - reset all software-adjustable settings to the values they originally were given at the factory.

**Factory Reset** - reset factory settings (as above) plus reset audits and alarm counters.



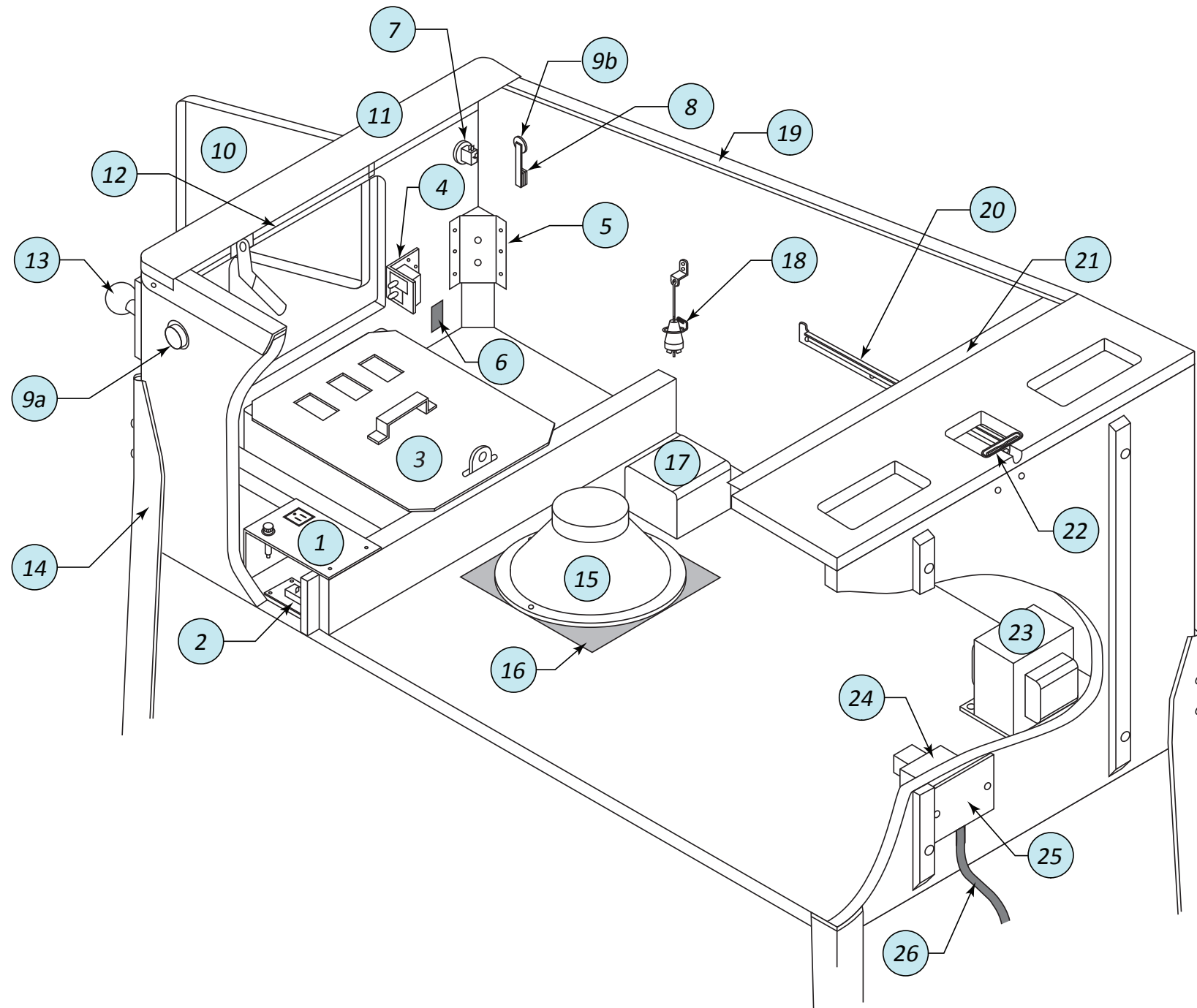
# Section C

## Game Parts Information

*Under Construction!*

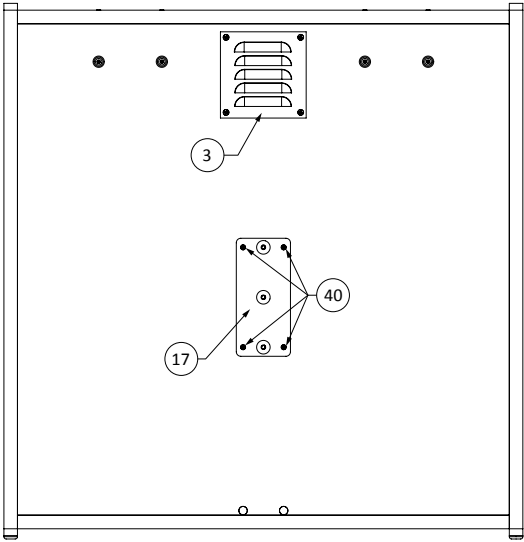
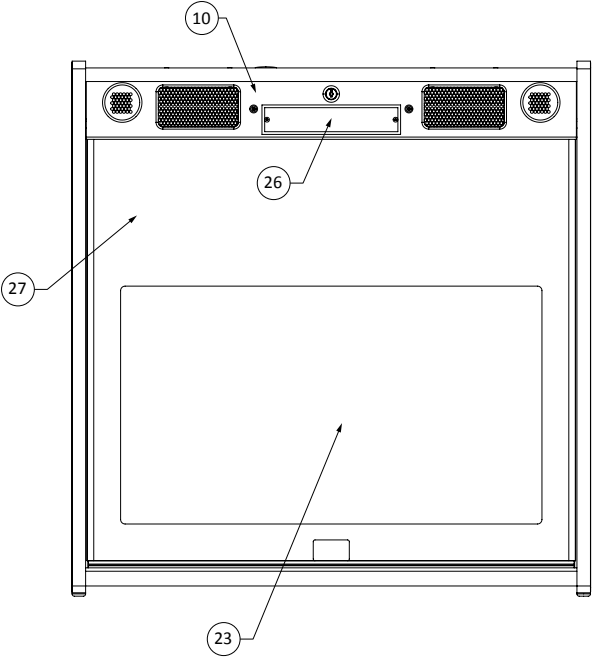
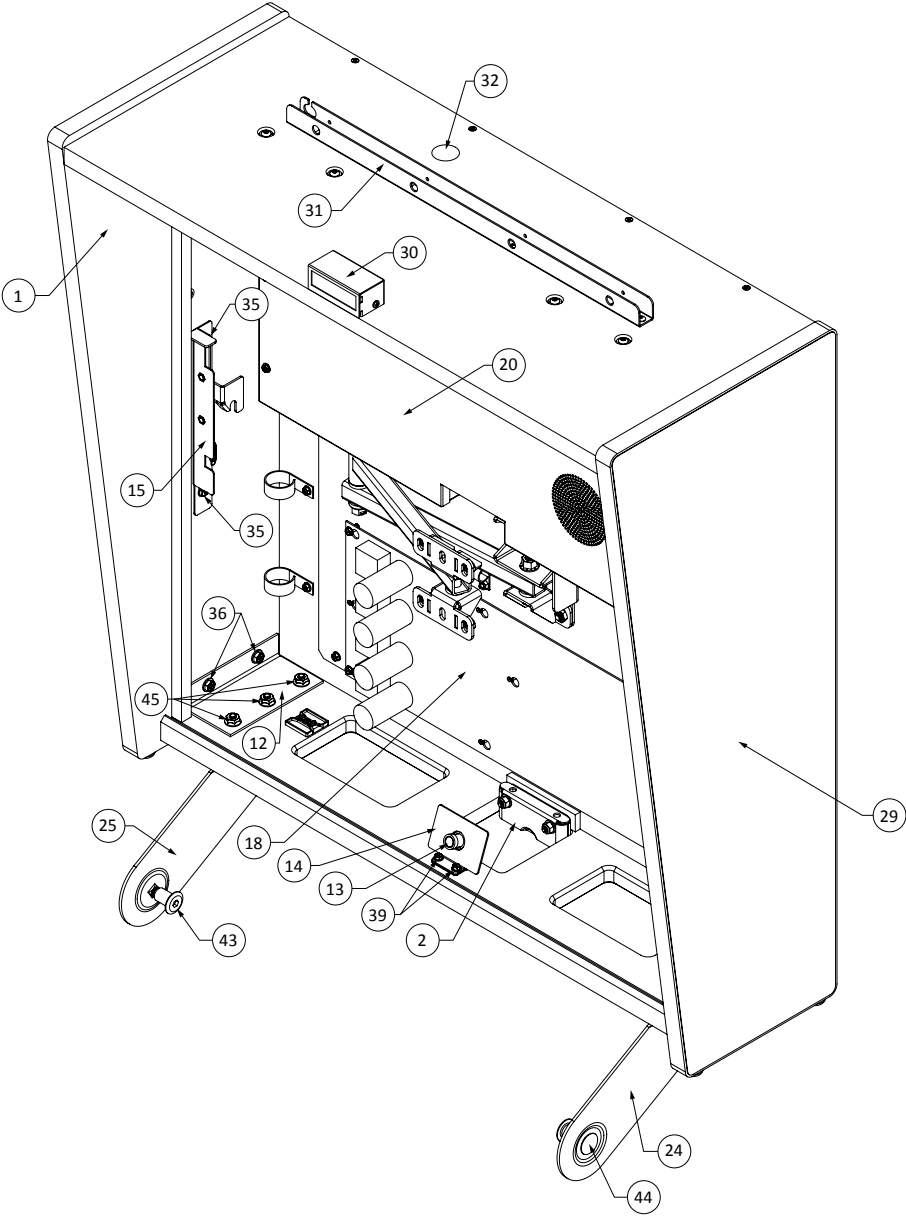
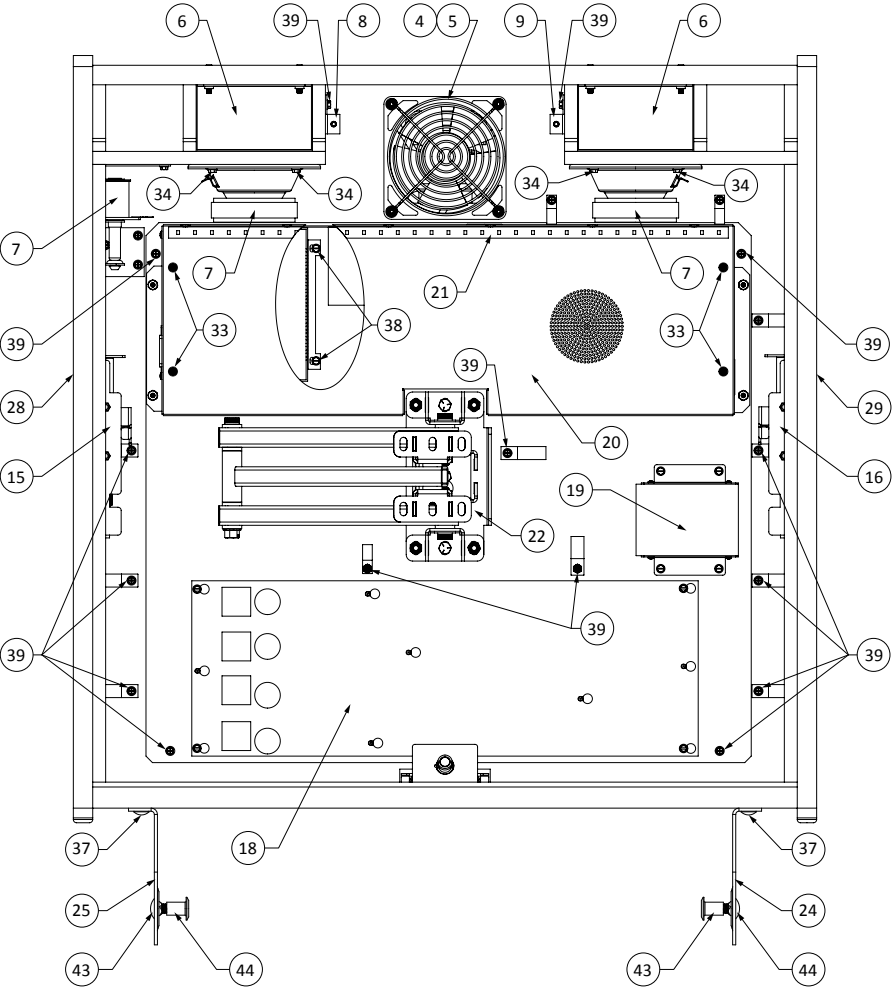






## DI Lower Cabinet Assembly 50-005024-00

Item	Part Number	Description	Qty	Drawing	Item	Part Number	Description	Qty
1	51-005001-00	Power Box Assy	1	C-	15	17-006004-00	Subwoofer Speaker, 8", 8Ω, 40W	1
2	18-007012-00	On/Off Switch Assy	1		16	10-000002-00	Cabinet Speaker Grill, 8"	1
3	30-000001-00	Pinball Cashbox, Plastic	1		17	51-005027-01	Shaker Motor Assy	1
	10-000011-00	Cashbox Cover, Universal	1		18	51-000028-00	Plumb Bob Tilt Assy	1
4	51-000035-00	Door & Interlock Switch Assy	1		19	CE 42-007008-07	DI Laser Cut Side Rail, Right, DI Purple	1
a)	10-000089-00	Door & Interlock Switch Brkt	1			CE 42-007007-07	DI Laser Cut Side Rail, Left, DI Purple	1
b)	18-003007-01	Safety Interlock Switch, 2/16	1			LE 42-007003-08	Cabinet Side Rail, DI Blue	2
c)	18-003008-00	Coin Door Switch	1			Std 42-007003-01	Cabinet Side Rail, Stainless	2
5	10-000006-00	Cabinet Leg Mtg Brkt	4		NS	30-008000-00	Cabinet Side Glass Channel	2
6	51-000064-00	Cabinet Headphone Jack Assy (front of cabinet)	1	C-	NS	60-000001-01	Standard Playfield Invisiglass®	1
7	18-007023-04	Start Button Switch Assy, Recessed, Yellow	1			Std 60-000001-00	Standard Playfield Glass	1
8	18-000005-00	Flipper Leaf Switch, Single Contact (Left)	1		20	10-000033-01	Playfield Support/Slide Brkt, Left	1
NS	18-000005-01	Flipper Leaf Switch, Double Contact (Right)	1		NS	10-000033-00	Playfield Support/Slide Brkt, Right	1
9	18-007009-02	Flipper Button Assy, Red	2		21	30-008001-02	Cabinet Rear Glass Channel, Standard	1
a)	30-000009-02	Flipper Button, Red	2		22	42-005001-00	Roto-Lock Latch	1
b)	91-000001-10	Flipper Button PAL Nut	2		23	16-005000-01	Main Transformer	1
10	40-000006-20	Standard USA Coin Door Assy, 12V, No Headphone	1	E-	24	51-005023-00	Line Filter Box Assy	1
11	CE 10-000027-07	Lockdown Bar, Standard, DI Purple	1		25	10-000010-01	Line Cord Cover Plate, No Cutout	1
	LE 10-000027-06	Lockdown Bar, Standard, DI Blue	1		26	19-009000-00	Line Power Cable, USA	1
	Std 10-000027-00	Lockdown Bar, Standard, Stainless	1		NS	61-000007-01	DI Cabinet Decal, Left Side	1
12	10-008001-10	Lockdown Bar Receiver Assy	1		NS	61-000007-00	DI Cabinet Decal, Right Side	1
13	CE 51-000087-02	DI Ball Shooter Assy, CE	1	C-	NS	61-003007-00	DI Cabinet Decal, Front	1
	LE 51-000087-01	DI Ball Shooter Assy, LE	1	C-				
	Std 51-000087-00	DI Ball Shooter Assy, Std	1	C-				
14	CE 10-000031-07	Cabinet Leg Assy, 30.5", DI Purple	4					
	LE 10-000031-06	Cabinet Leg Assy, 30.5", DI Blue	4					
	Std 10-000031-01	Cabinet Leg Assy, 30.5", Chrome	4					
NS	10-000133-00	Cabinet Leg Brkt, Decal Protector	4					

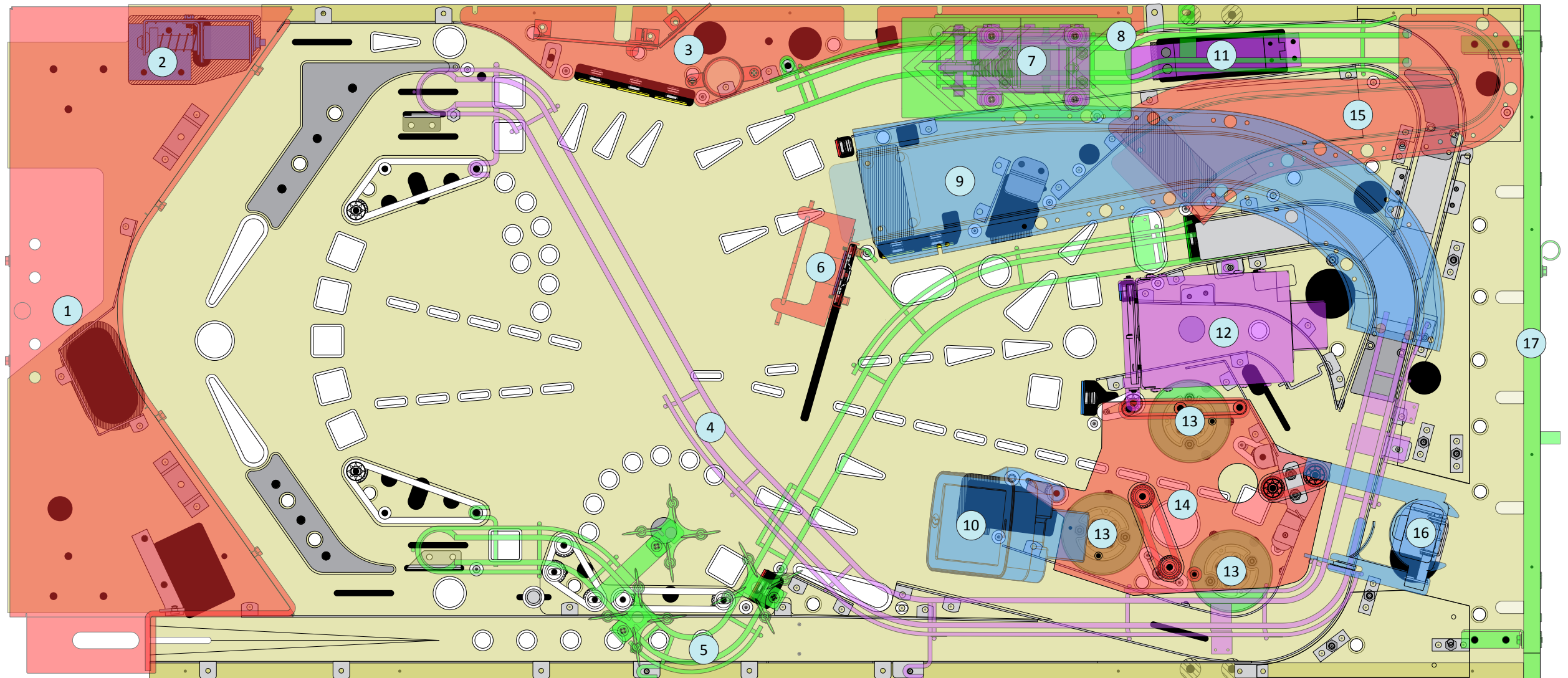


## DI Backbox Assemblies

### 50-005023-00, -01, -02

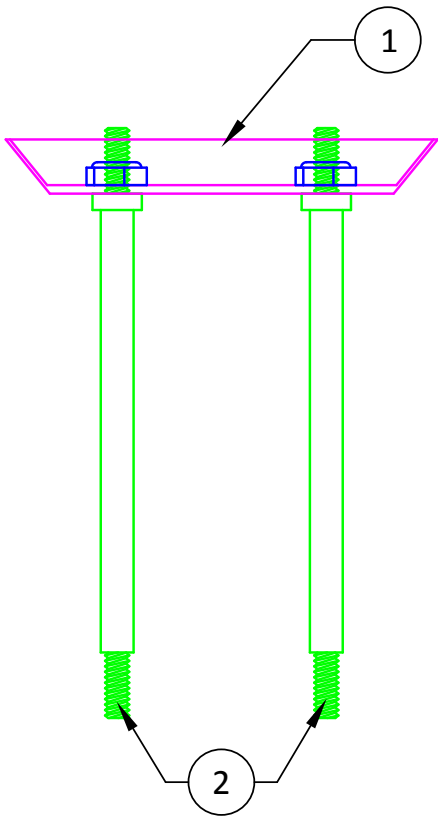
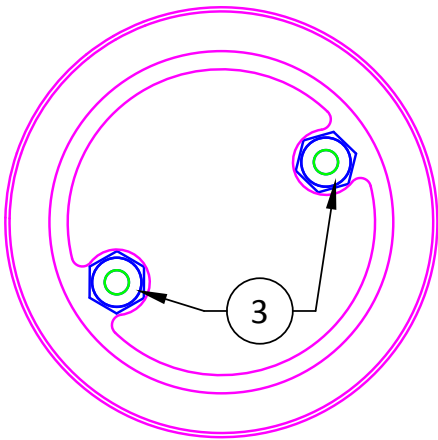
Item	Part Number	Description	Qty	Drawing	Item	Part Number	Description	Qty
1	05-002003-00	Backbox Wood Assy	1		27	51-005046-00	DI Printed Backglass Assy	1
2	42-005002-00	Roto-Lock Receptacle	1		a)	30-008002-00	Backglass Top Plastic Channel, 26-15/16"	1
3	10-000234-00	Backbox Vent Hole Cover, Louvered	1		b)	30-008002-01	Backglass Side Plastic Channel	2
4	23-005004-02	Fan, 12VDC Motor, 120mm, 25mm Wide	1		c)	30-008004-00	Backglass Lift Channel	1
5	10-000110-01	Fan Guard, 4.69"	1		NS	60-000007-00	DI Printed Backglass	1
6	10-000201-00	Backbox Speaker Acoustic Plate	2		CE	51-005046-01	DI Printed Backglass Assy, CE	1
7	17-006003-00	5.25" Midrange Speaker, 8Ω	2		a)	30-008002-00	Backglass Top Plastic Channel, 26-15/16"	1
8	10-000207-00	Backbox Speaker Bar Mtg Brkt, Left	1		b)	30-008002-01	Backglass Side Plastic Channel	2
9	10-000207-01	Backbox Speaker Bar Mtg Brkt, Right	1		c)	30-008004-00	Backglass Lift Channel	1
10	51-006003-00	Backbox Speaker Bar & Cable Assy	1	C-	NS	60-000007-01	DI Printed Backglass, CE	1
11	51-000032-01	Knocker Assy, Vertical	1	C-	28	61-006007-01	DI Backbox Decal, Left Side	1
12	10-000034-01	Backbox Inner Corner L Brkt, Extended	2		CE	30-003009-04	DI CE Backbox Rad-Cal, Left Side	1
13	51-005041-00	USB Camera Assy	1	C-	29	61-006007-00	DI Backbox Decal, Right Side	1
14	30-000094-00	USB Camera Cover	1		CE	30-003009-05	DI CE Backbox Rad-Cal, Right Side	1
15	10-008003-00	27" LCD Lock/Latch Brkt Assy, Left	1		30	Std 51-005048-00	Flasher Topper Assy	1
16	10-008003-01	27" LCD Lock/Latch Brkt Assy, Right	1		31	CE 51-006010-00	DI CE Backbox Topper Mtg Brkt & Cable Assy	1
17	10-000206-01	27" LCD Pivot Backbox Face Plate	1		32	30-000093-01	Button Plug, 1", Black	1
18	51-005045-00	Backbox Mount PCB Assy	1	C-	33	80-002008-04	8-32 x 1/4" HWH Phillips MS, Serrated	4
19	51-005044-00	Backbox Mount Solid State Drive Assy	1	C-	34	80-002008-08	8-32 x 1/2" HWH Phillips MS, Serrated	8
20	10-000236-01	Backbox PCBs EMI Shield Lid	1		35	80-002010-06	10-32 x 3/8" HWH Phillips MS, Serrated	4
21	51-005042-00	Backbox LED Strip Assy, w/Cable	1		36	80-002025-08	1/4-20 x 1/2" HWH Phillips MS, Serrated	4
22	51-005043-00	27" LCD Pivot/Swing Assy	1	C-	37	81-005125-20	1/4-20 x 1-1/4" Carriage Bolt, Black	6
23	51-005032-10	27" LCD Monitor Assy, Backbox PCBs	1	C-	38	82-002006-08	#6 x 1/2" HWH Phillips SMS	2
24	CE 42-007001-20	Backbox Right Mtg Hinge, DI Purple	1		39	82-002008-08	#8 x 1/2" HWH Phillips SMS	17
	LE 42-007001-16	Backbox Right Mtg Hinge, DI Blue	1		40	82-006106-08	#6 x 1/2" PFH SMS, w/Undercut, Black	4
	Std 42-007001-00	Backbox Right Mtg Hinge, Black	1		41	82-008106-08	#6 x 1/2" TP T-10 Torx SMS, Black	2
25	CE 42-007001-21	Backbox Left Mtg Hinge, DI Purple	1		42	82-008108-10	#8 x 5/8" TP T-20 Torx SMS, Black	2
	LE 42-007001-17	Backbox Left Mtg Hinge, DI Blue	1		43	85-003816-12	3/8-16 x 3/4" Hinge Bolt, Short Neck, Black	2
	Std 42-007001-01	Backbox Left Mtg Hinge, Black	1		44	85-003816-00	3/8-16 x 3/4" x 1/2" SH T-Nut Pivot Bushing, Black	2
26	CE 30-000114-20	JJP Logo Name Plate, CE	1		45	91-002025-00	1/4-20 Flange Nut	6
	LE 30-000114-10	JJP Logo Name Plate, LE	1					
	Std 30-000114-00	JJP Logo Name Plate, Std	1					





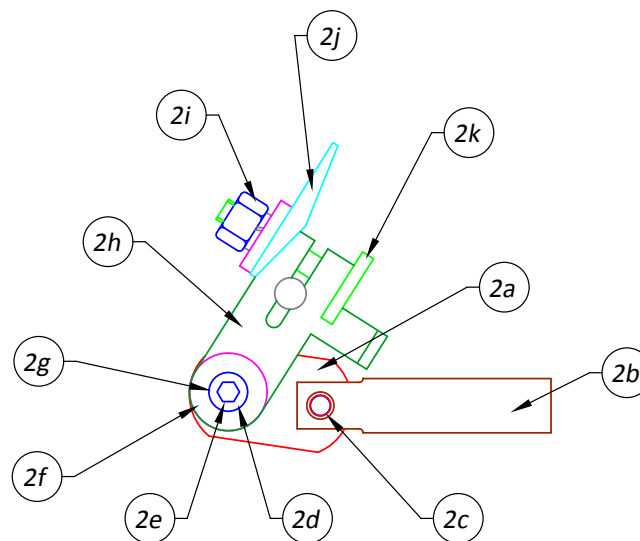
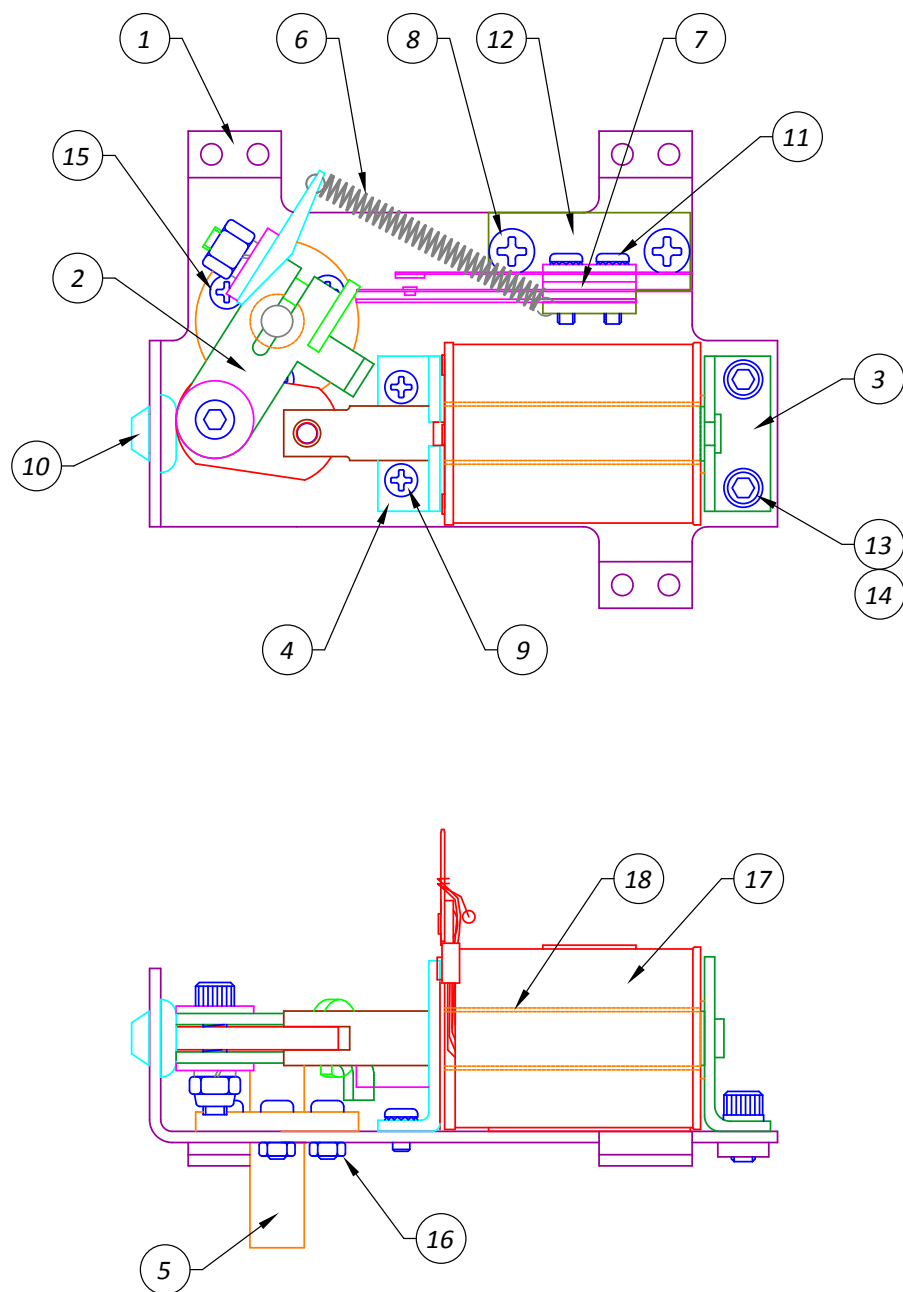
## Above-Playfield Assemblies

Item	Part Number	Assembly Name	Game Function	Drawing
1	52-000060-0X	DI Bottom Arch Assembly	Playfield Bottom Arch	C-
2	51-000025-00	Kickback Assembly, Left Mount	Kickback	C-
3	52-000059-00	DI Left Side Playfield Plastic Assembly	Playfield Plastic	C-
4	13-002006-00	DI Left Ramp Exit Wire Ramp Assembly	Ball Return (to Right Flipper)	C-
5	13-002005-00	DI Crossover Wire Ramp Assembly	Ball Return (to Left Flipper)	C-
6	51-000081-20	DI Moving Tgt Sculpture Mtg Brkt Assembly	QED Figure; Moving Target	C-
7	51-000084-00	3-Ball Lock Assembly	Physical Ball Lock	C-
8	52-000054-00	DI 3-Ball Lock Ramp Assembly	Station 3; Ball Lock Wire Ramp	C-
9	52-000050-X0	DI Left Ramp Assembly	Station 1; Left Ramp	C-
10	52-000049-00	DI Smartphone Assembly	Smartphone; PF Display	C-
11	51-000082-10	DI Trap Door Surface Assembly	Bob's Trap Door	C-
12	52-000048-00	DI Quantum Theater Assembly	Quantum Theater; PF Display	C-
13	51-000106-949	Pop Bumper Top Assy, White/Yellow/White	Left, Right & Lower Pop Bumpers	C-
	11-005004-01	Pop Bumper Ring & Rod Assembly		C-
14	52-000062-00	DI Mini Playfield Assembly	Mini Playfield	C-
15	52-000051-00	DI Upper Left Ramp Assembly	Ball Lock Ramp	C-
16	52-000056-10	DI Robot & Betty Sculpture Assembly	Robot Betty Ball Diverter	C-
17	52-000047-00	DI Back Panel Assembly	Playfield Backdrop	C-



Pop Bumper Ring & Rod Assembly  
11-005004-01

Item	Part Number	Description	Qty
1	11-000005-00	Pop Bumper Ring	1
2	11-000008-00	Pop Bumper Rod	2
3	91-000006-00	6-32 Nylon Stop Nut	2

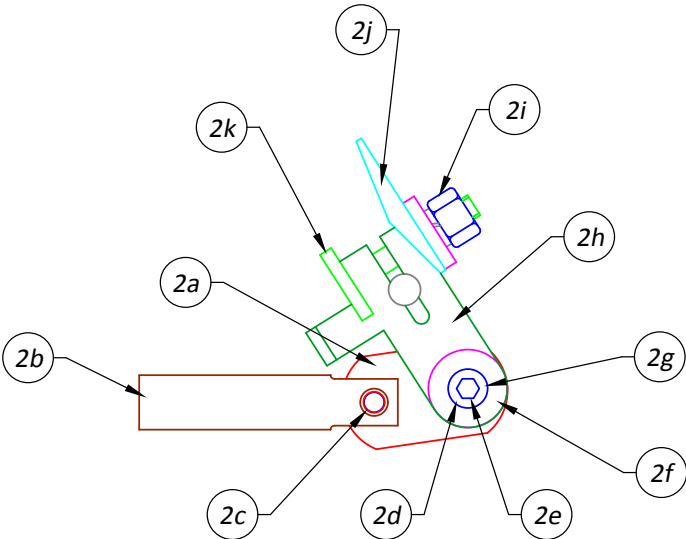
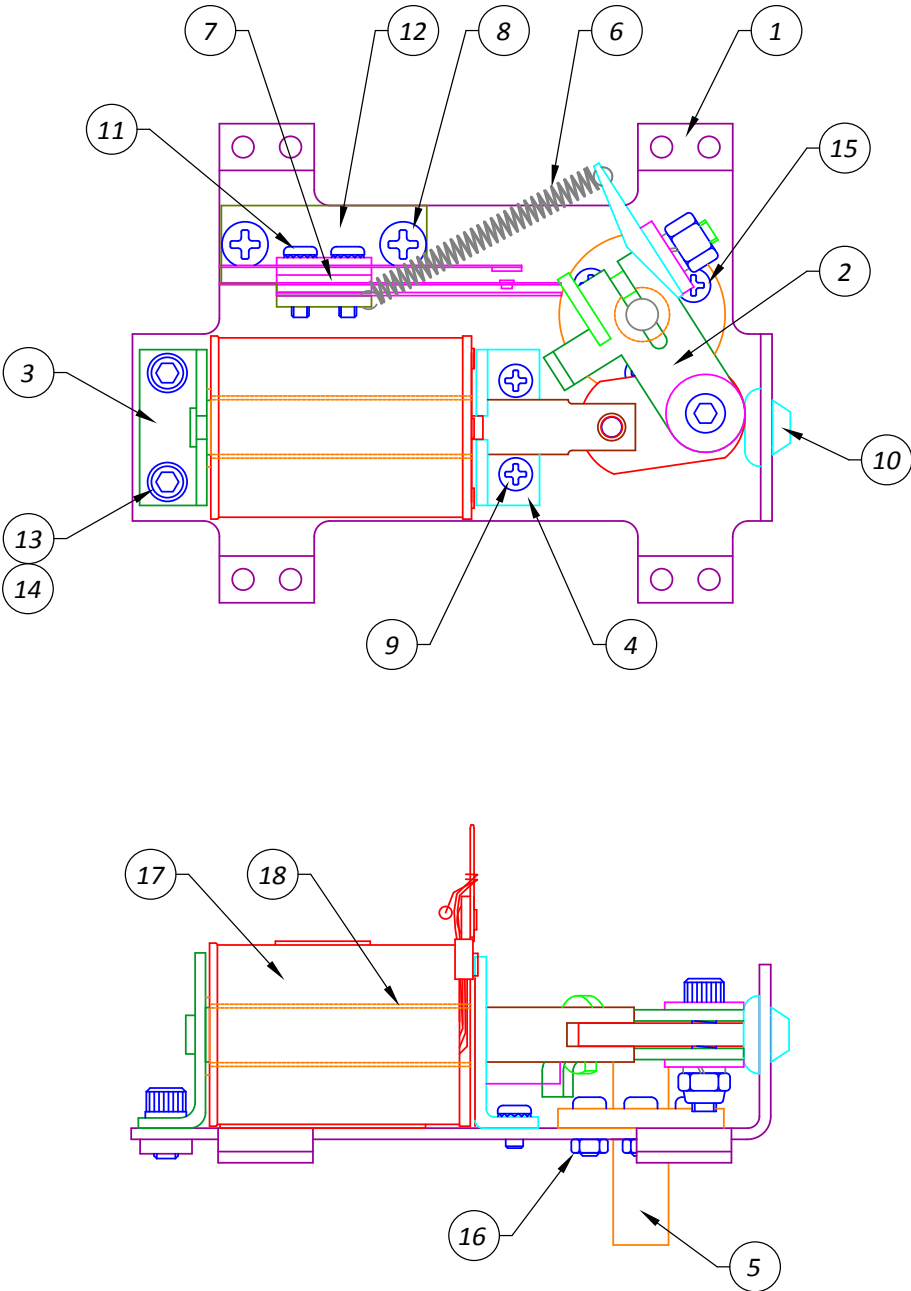


## Right Flipper Assembly, Mod-UL 51-000001-14

Item	Part Number	Description	Qty
1	10-005001-14	Flipper Base Plate, Right, Mod-UL	1
2	51-005018-00	Flipper Crank & Link Assy, Right	1
a)	30-009003-00	Flipper Link	1
b)	11-000003-00	Flipper Plunger	1
c)	94-004002-00	5/32" x 7/16" Roll Pin	1
d)	94-003001-00	Flipper Crank & Link Bushing	1
e)	90-004010-14	10-32 x 7/8" SH CS	1
f)	92-000010-00	#10 Flat Washer	2
g)	91-000010-00	10-32 Nylon Stop Nut	1
h)	10-000019-00	Flipper Crank, Right	1
i)	91-002010-01	10-32 Hex Nut	1
j)	10-000020-00	Flipper Return Spring Brkt	1
k)	90-000001-00	Locking Stud Bolt	1
3	10-007001-00	Flipper Coil Stop Brkt	1
4	10-007002-01	Flipper Coil Centering Brkt, 1-Way	1
5	30-009002-00	Flipper Bushing	1
6	13-007001-00	Flipper Return Spring	1
7	18-000001-00	End Of Stroke Leaf Switch	1
8	80-000008-05	8-32 x 5/16" PPH MS	2
9	80-001006-04	6-32 x 1/4" PPH MS, SEMS	2
10	25-009001-00	Rubber Bumper Plug, Black	1
11	82-000006-08	#6 x 1/2" PPH SMS	2
12	10-000018-00	End Of Stroke Switch Brkt	1
13	90-004010-06	10-32 x 3/8" SH CS	2
14	92-001010-00	#10 Split Lock Washer	2
15	80-000006-06	6-32 x 3/8" PPH MS	3
16	91-000006-00	6-32 Nylon Stop Nut	3
<b>for 52-000131-14, Right Flipper Assy, Mod-UL, FL-15411, add:</b>			
17	23-002003-00	FL-15411 Flipper Coil	1
18	30-000014-35	2-3/16" Coil Tubing, Straight	1



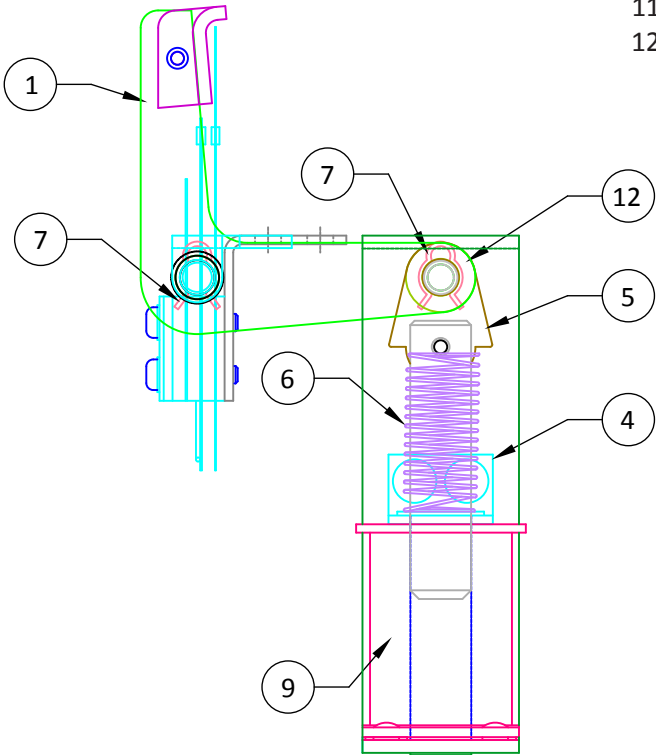
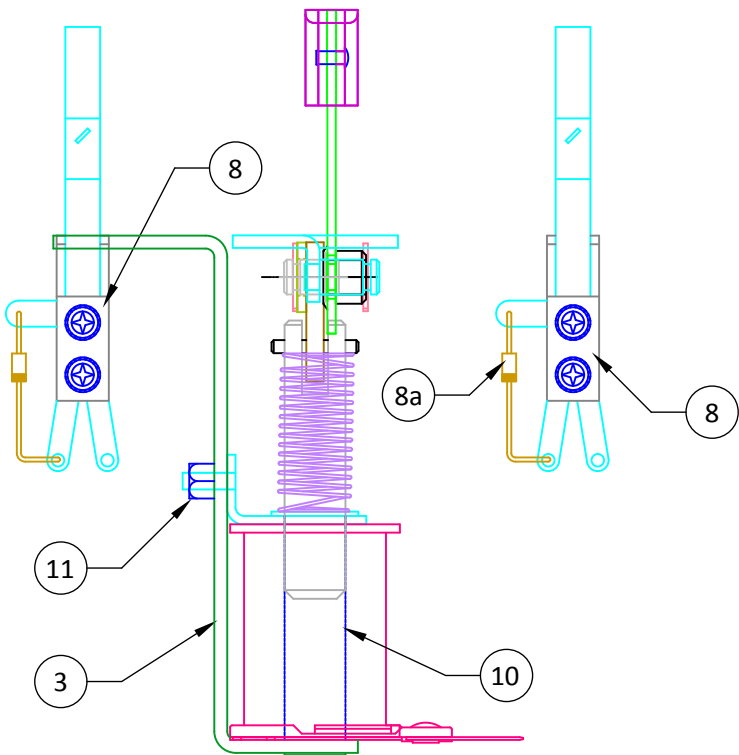
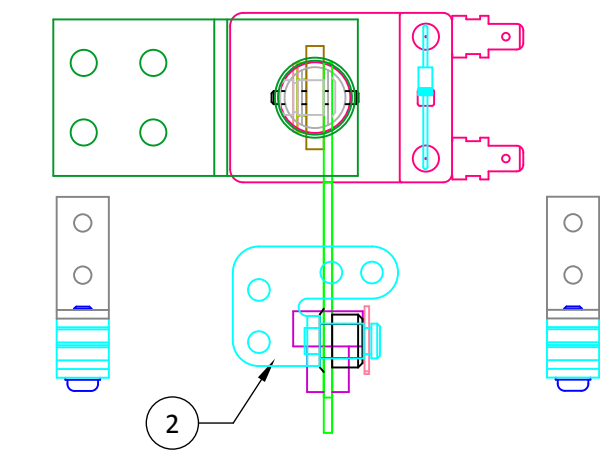
Left Flipper Assembly  
51-000002-00

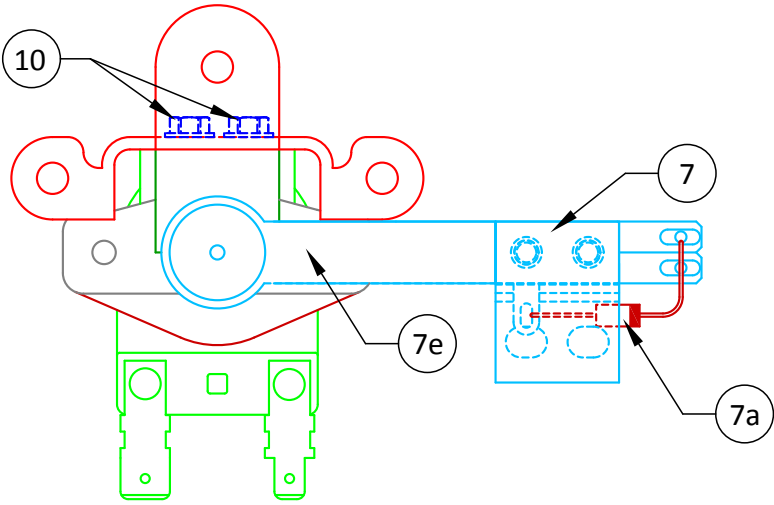


Item	Part Number	Description	Qty
1	10-005002-00	Flipper Base Plate, Left	1
2	51-005018-01	Flipper Crank & Link Assy, Left	1
a)	30-009003-00	Flipper Link	1
b)	11-000003-00	Flipper Plunger	1
c)	94-004002-00	5/32" x 7/16" Roll Pin	1
d)	94-003001-00	Flipper Crank & Link Bushing	1
e)	90-004010-14	10-32 x 7/8" SH CS	1
f)	92-000010-00	#10 Flat Washer	2
g)	91-000010-00	10-32 Nylon Stop Nut	1
h)	10-000019-01	Flipper Crank, Left	1
i)	91-002010-01	10-32 Hex Nut	1
j)	10-000020-00	Flipper Return Spring Brkt	1
k)	90-000001-00	Locking Stud Bolt, Flipper Crank	1
3	10-007001-00	Flipper Coil Stop Brkt	1
4	10-007002-01	Flipper Coil Centering Brkt, 1-Way	1
5	30-009002-00	Flipper Bushing	1
6	13-007001-00	Flipper Return Spring	1
7	18-000001-00	End Of Stroke Leaf Switch	1
8	80-000008-05	8-32 x 5/16" PPH MS	2
9	80-001006-04	6-32 x 1/4" PPH MS	2
10	25-009001-00	Rubber Bumper Plug, Black	1
11	82-000006-08	#6 x 1/2" PPH SMS	2
12	10-000018-00	End Of Stroke Switch Brkt	1
13	90-004010-06	10-32 x 3/8" SH CS	2
14	92-001010-00	#10 Split Lock Washer	2
15	80-000006-06	6-32 x3/8" PPH MS	3
16	91-000006-00	6-32 Nylon Stop Nut	3
<b>for 52-000132-00, Left Flipper Assy, FL-15411, add:</b>			
17	23-002003-00	FL-15411 Flipper Coil	1
18	30-000014-35	2-3/16" Coil Tubing, Straight	1

Slingshot Assembly, 23-800  
51-000003-00

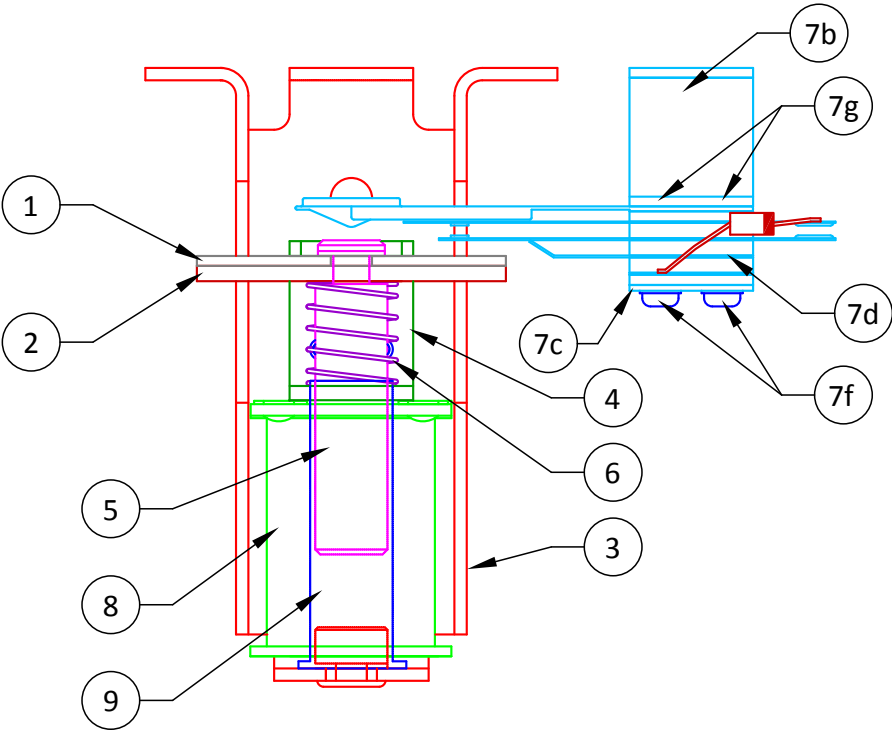
Item	Part Number	Description	Qty
1	10-000042-00	Slingshot Kicker Crank Assy	1
2	10-000043-00	Slingshot Kicker Crank Mtg Brkt	1
3	10-005004-00	Slingshot Coil Brkt	1
4	10-007000-01	Coil Centering Brkt, 5/8", 6-32 Studs	1
5	11-005003-01	Slingshot Plunger & Link Assy, 2-1/8"	1
6	13-007004-00	Slingshot Plunger Return Spring	1
7	13-009002-00	Hairpin Clip	2
8	18-007008-00	Slingshot Leaf Switch Assy, Front Mount	2
a)	110-000002-0T	Diode, 1N4004, 400V, 1A	2
9	23-000003-00	23-800 Standard Coil	1
10	30-000014-28	1-3/4" Coil Tubing, Straight	1
11	91-000006-00	6-32 Nylon Stop Nut	2
12	95-002651-20-67	Flat Washer, 0.265" x 0.5" x 0.067"	1

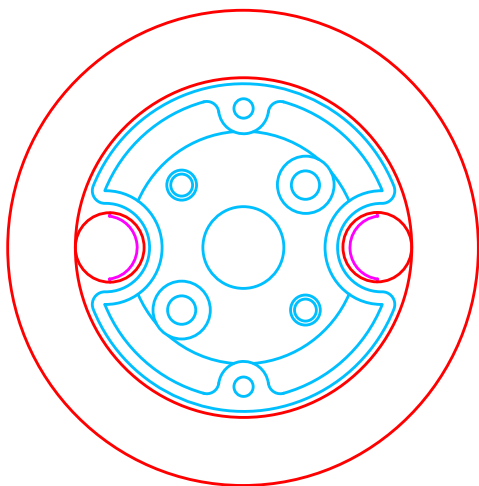




Pop Bumper Bottom Assembly, 26-1200  
51-000004-01

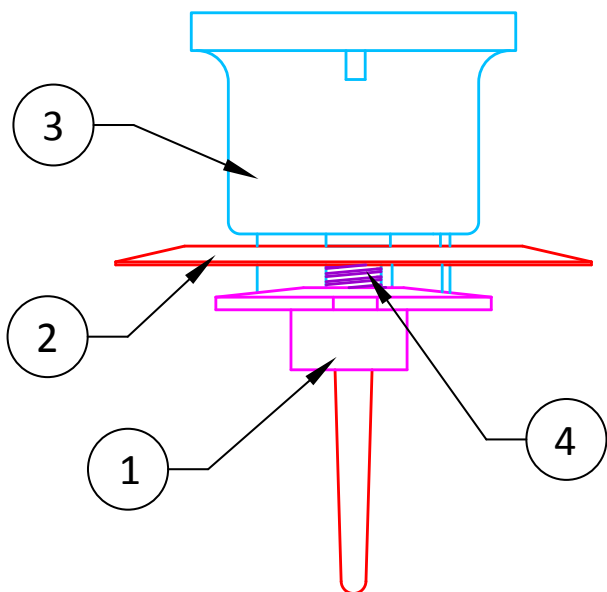
Item	Part Number	Description	Qty
1	10-000021-00	Pop Bumper Yoke, Steel	1
2	10-000021-01	Pop Bumper Yoke, Bakelite	1
3	10-005003-00	Pop Bumper Coil Brkt	1
4	10-007003-00	Pop Bumper Coil Centering Brkt	1
5	11-000004-00	Pop Bumper Plunger	1
6	13-007002-00	Pop Bumper Plunger Return Spring	1
7	18-007007-00	Pop Bumper Leaf Switch Assy	1
a)	110-000002-0T	Diode, 1N4004, 400V, 1A	1
b)	10-000022-00	Pop Bumper Switch Brkt	1
c)	10-000022-01	Curved Switch Plate	1
d)	18-000002-00	Pop Bumper Leaf Switch	1
e)	30-000002-00	Pop Bumper Switch Spoon	1
f)	80-000005-12	5-40 x 3/4" PPH MS	2
g)	91-002005-00	5-40 Hex Nut	2
8	23-000010-00	26-1200 Standard Coil	1
9	30-000014-28	1-3/4" Coil Tubing, Straight	1
10	80-002006-04	6-32 x 1/4" HWH Phillips MS, Serrated	2

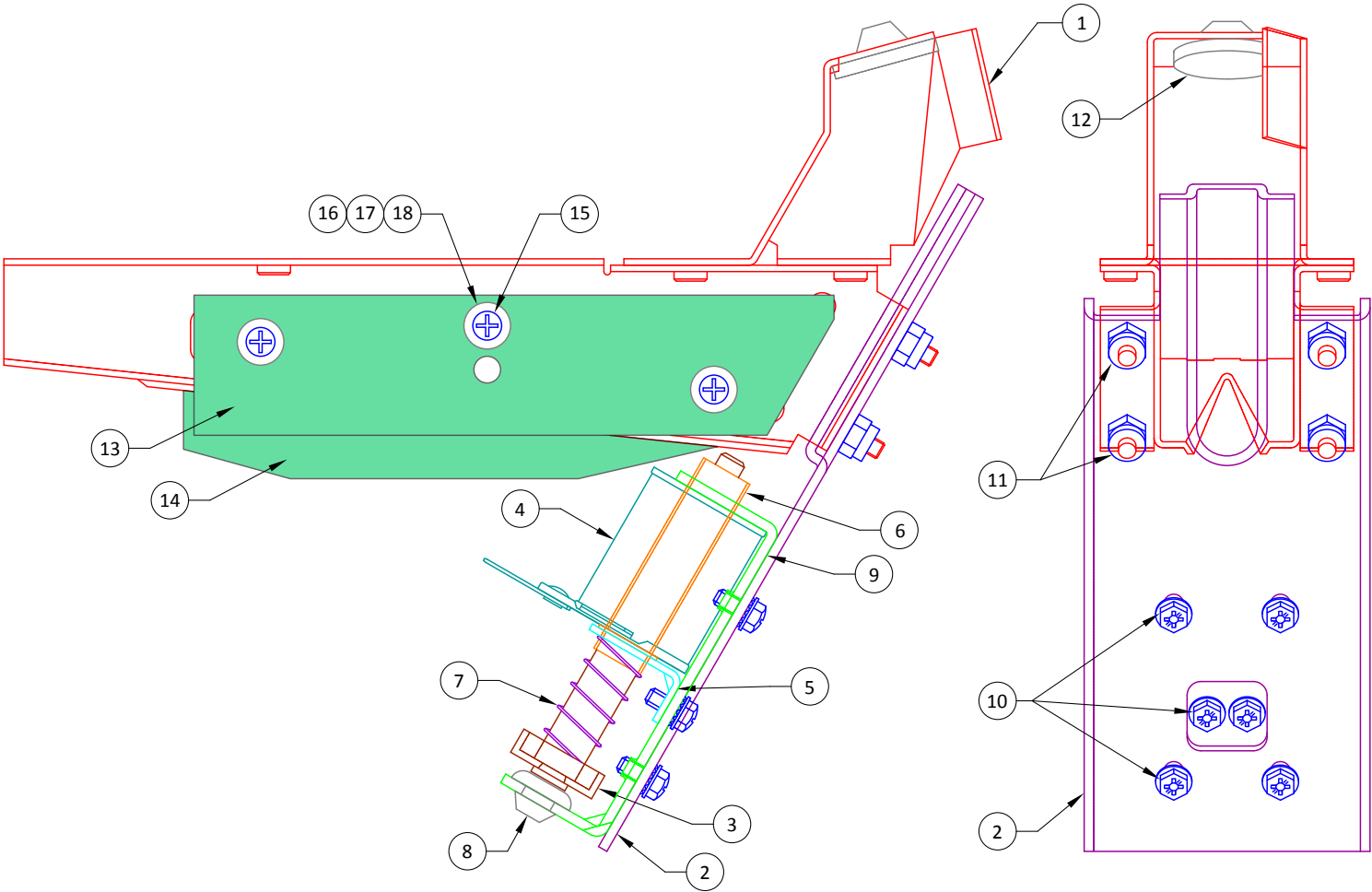




## Pop Bumper Top Assembly, White/Yellow/White 51-000106-949

Item	Part Number	Description	Qty
1	30-000003-09	Pop Bumper Base, White	1
2	30-000004-04	Pop Bumper Skirt, Yellow	1
3	30-000005-09	Pop Bumper Body, White	1
4	13-007003-00	Pop Bumper Skirt Spring	1

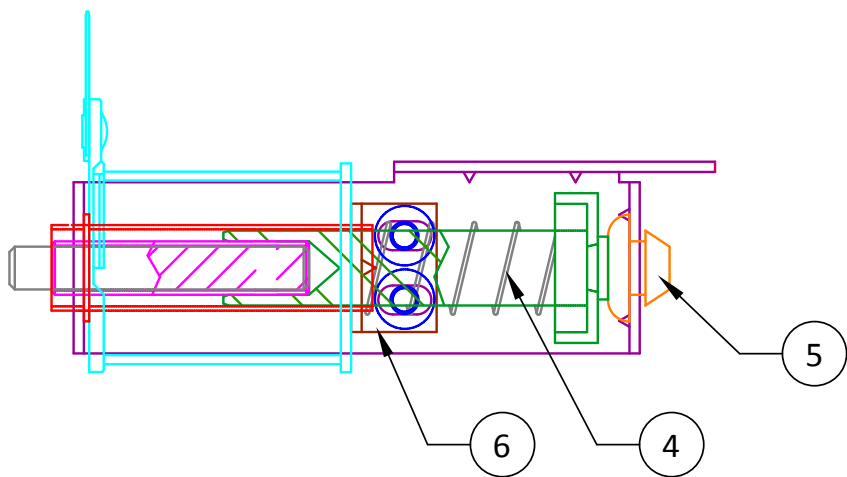




5-Ball Trough Assembly  
51-000021-00

Item	Part Number	Description	Qty
1	10-005010-00	Ball Trough Main Brkt	1
2	10-005010-01	Ball Trough Coil Brkt	1
3	11-005001-00	VUK Armature Plunger Assy	1
4	23-000010-00	26-1200 Standard Coil	1
5	10-007000-00	Coil Centering Brkt, 5/8", 8-32	1
6	30-000014-30-1	1-7/8" Coil Tubing, Flanged	1
7	13-007005-00	VUK Plunger Return Spring	1
8	25-009001-00	Rubber Bumper Plug, Black	1
9	10-007006-00	Ball Trough Coil Mtg Brkt	1
10	80-002008-04	8-32 x 1/4" HWH Phillips MS, Serrated	6
11	91-000008-00	8-32 Nylon Stop Nut	4
12	25-009001-01	Ball Trough Bumper Plug, Blue	1
13	15-000004-01	5-Ball Trough Opto Transmitter Bd Assy	1
14	15-000004-00	5-Ball Trough Opto Receiver Bd Assy	1
15	80-002006-10	6-32 x 5/8" HWH Phillips MS, Serrated	6
16	25-009006-00	Rubber Grommet, Ball Trough PCB Mtg	6
17	92-000006-00	#6 Flat Washer	6
18	94-003002-00	Ball Trough PCB Metal Bushing	6

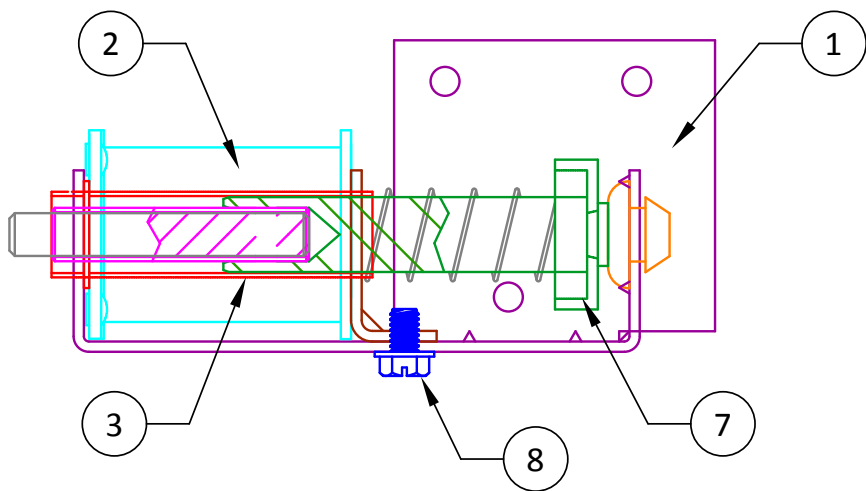


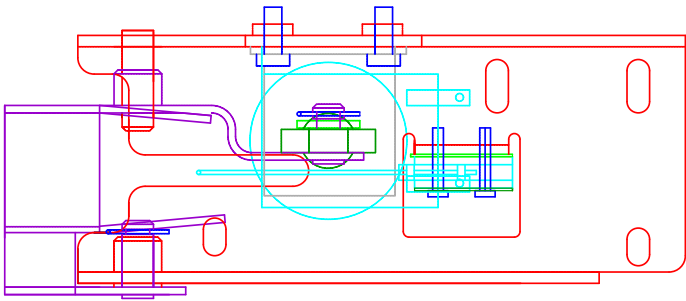


### Kickback Assembly, Left Mount

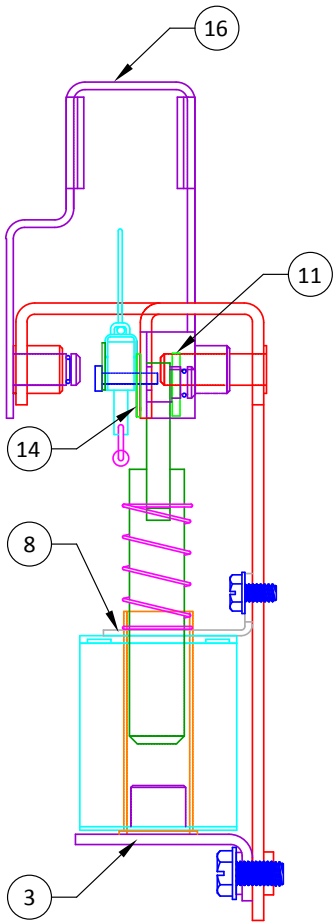
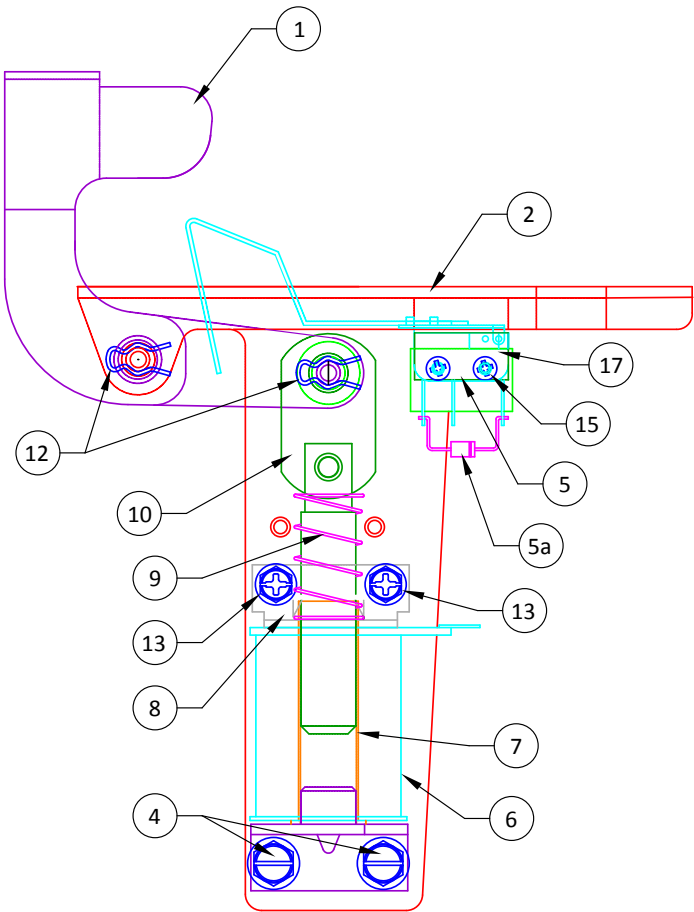
#### 51-000025-00

Item	Part Number	Description	Qty
1	10-005007-00	Kickback/Knocker Coil Brkt, Left Mount	1
2	23-000003-00	23-800 Standard Coil	1
3	30-000014-30-1	1-7/8" Coil Tubing, Flanged	1
4	13-007005-00	VUK Plunger Return Spring	1
5	25-009001-00	Rubber Bumper Plug, Black	1
6	10-007000-00	Coil Centering Brkt, 5/8", 8-32	1
7	11-005012-00	Kickback Plunger Assy	1
8	80-002008-04	8-32 x 1/4" HWH Phillips MS, Serrated	2

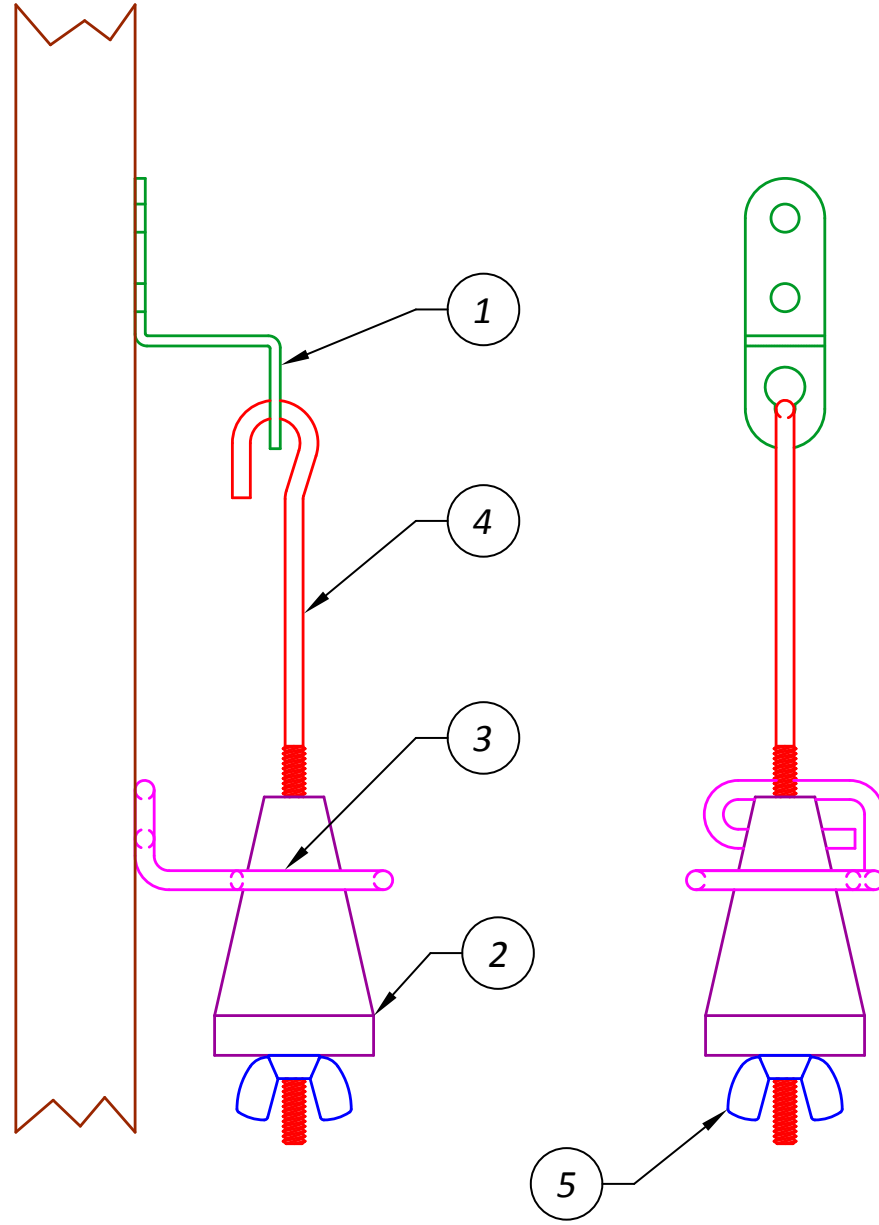




## Auto-Launch Assembly 51-000026-00

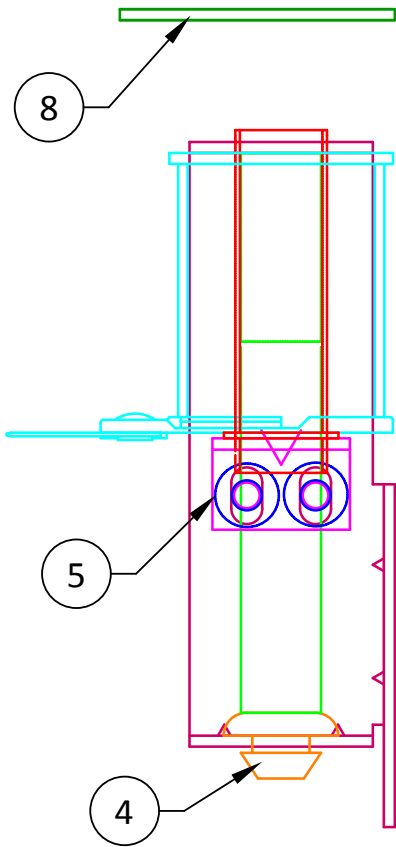
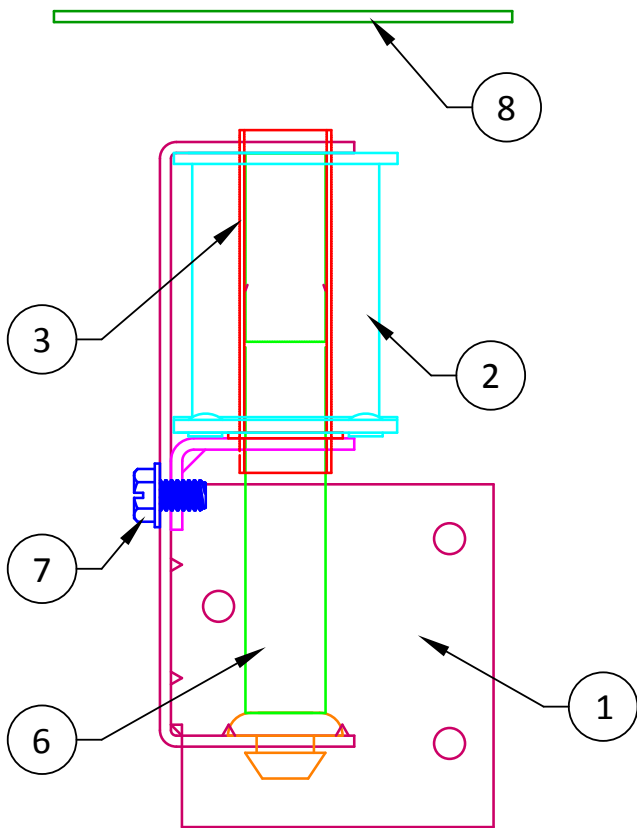


Item	Part Number	Description	Qty
1	10-000028-00	Auto-Launch Crank Brkt	1
2	10-005009-00	Auto-Launch Coil Brkt	1
3	10-007005-00	Auto-Launch Coil Stop Brkt	1
4	80-002010-06	10-32 x 3/8" HWH Phillips MS, Serrated	2
5	18-003001-00	Auto-Launch Microswitch & Wireform	1
a)	110-000002-0T	Diode, 1N4004, 400V, 1A	1
6	23-000003-00	23-800 Standard Coil	1
7	30-000014-28	1-3/4" Coil Tubing, Straight	1
8	10-007009-00	Coil Centering Brkt, 3/4"	1
9	13-007004-00	Slingshot Plunger Return Spring	1
10	11-005000-00	Flipper Coil Plunger & Link Assy	1
11	95-002364-12	Flat Washer, 23/64" x 1/2" x 12ga	1
12	13-009002-00	Hairpin Clip	2
13	80-002006-04	6-32 x 1/4" HWH Phillips, Serrated	2
14	70-009002-00	Microswitch Insulator, Fish Paper	1
15	80-000002-07	2-56 x 7/16" PPH MS	2
16	62-000002-00	Auto-Launch Crank Decal	1
17	10-000024-01	Microswitch Protector Plate, #2	1



## Plumb Bob Tilt Assembly 51-000028-00

Item	Part Number	Description	Qty
1	10-000086-00	Tilt Hanger Wire Brkt	1
2	11-000028-00	Plumb Bob Weight	1
3	13-003008-00	Tilt Contact Wire Form Brkt	1
4	13-003009-00	Tilt Hanger Wire	1
5	91-003406-00	6-32 Wing Nut, Nylon	1

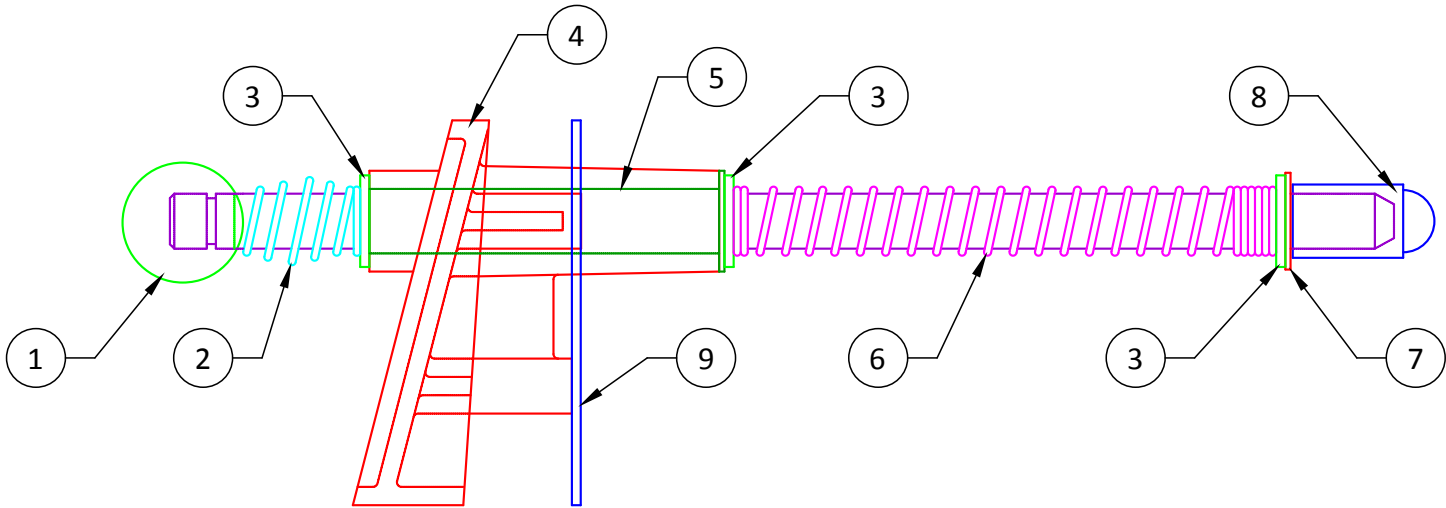
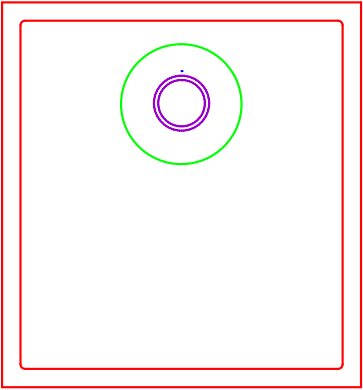


**Knocker Assembly, Vertical**  
**51-000032-01**

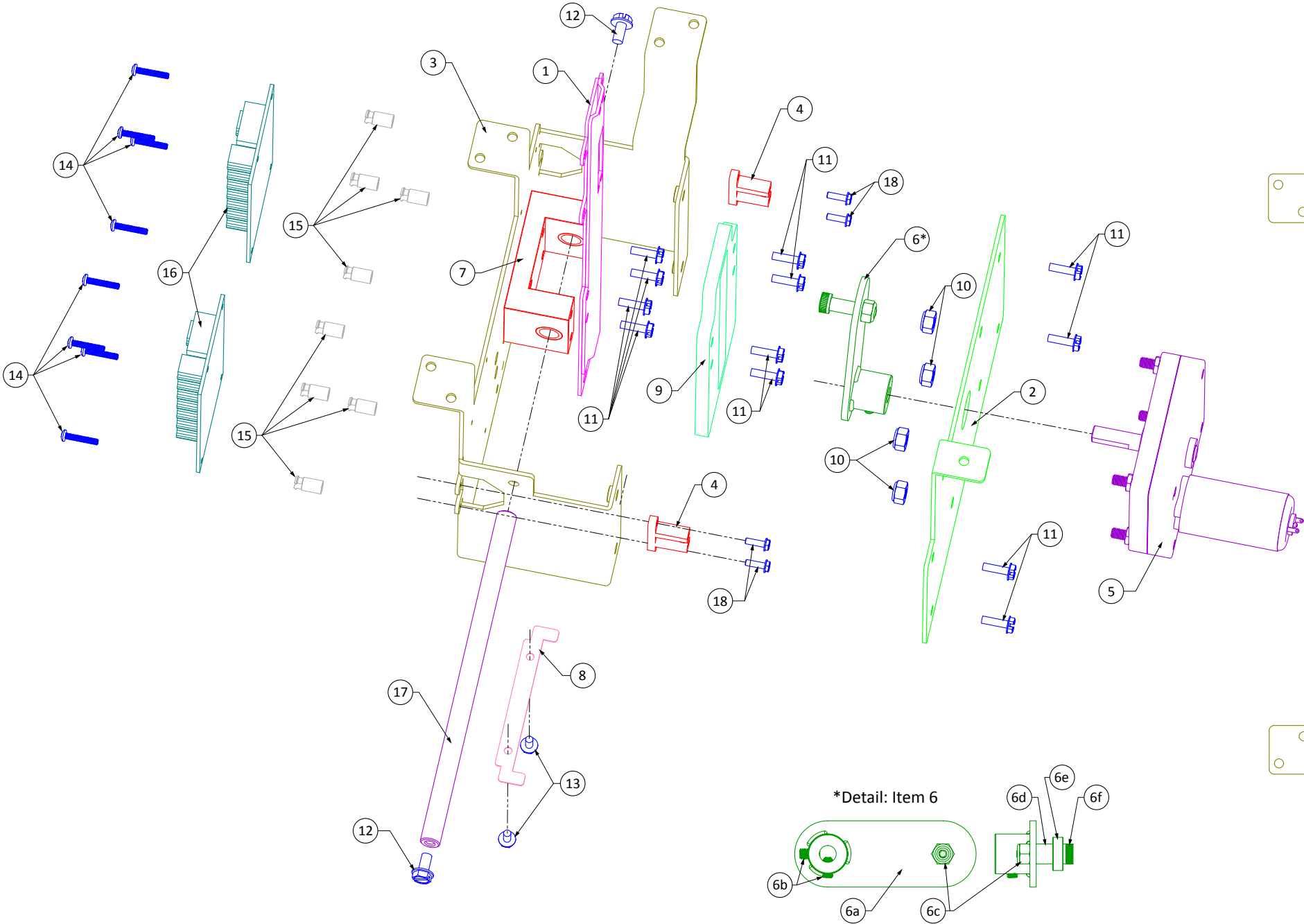
Item	Part Number	Description	Qty
1	10-005007-00	Kickback/Knocker Coil Brkt, Left Mount	1
2	23-000003-00	23-800 Standard Coil	1
3	30-000014-30-1	1-7/8" Coil Tubing, Flanged	1
4	25-009001-00	Rubber Bumper Plug, Black	1
5	10-007000-00	Coil Centering Brkt, 5/8", 8-32	1
6	11-000011-00	Knocker Plunger Assy	1
7	80-002008-04	8-32 x 1/4" HWH Phillips MS, Serrated	2
8	10-000016-00	Knocker Strike Plate	1

DI Ball Shooter Assemblies  
51-000087-00, 51-000087-01, 51-000087-02

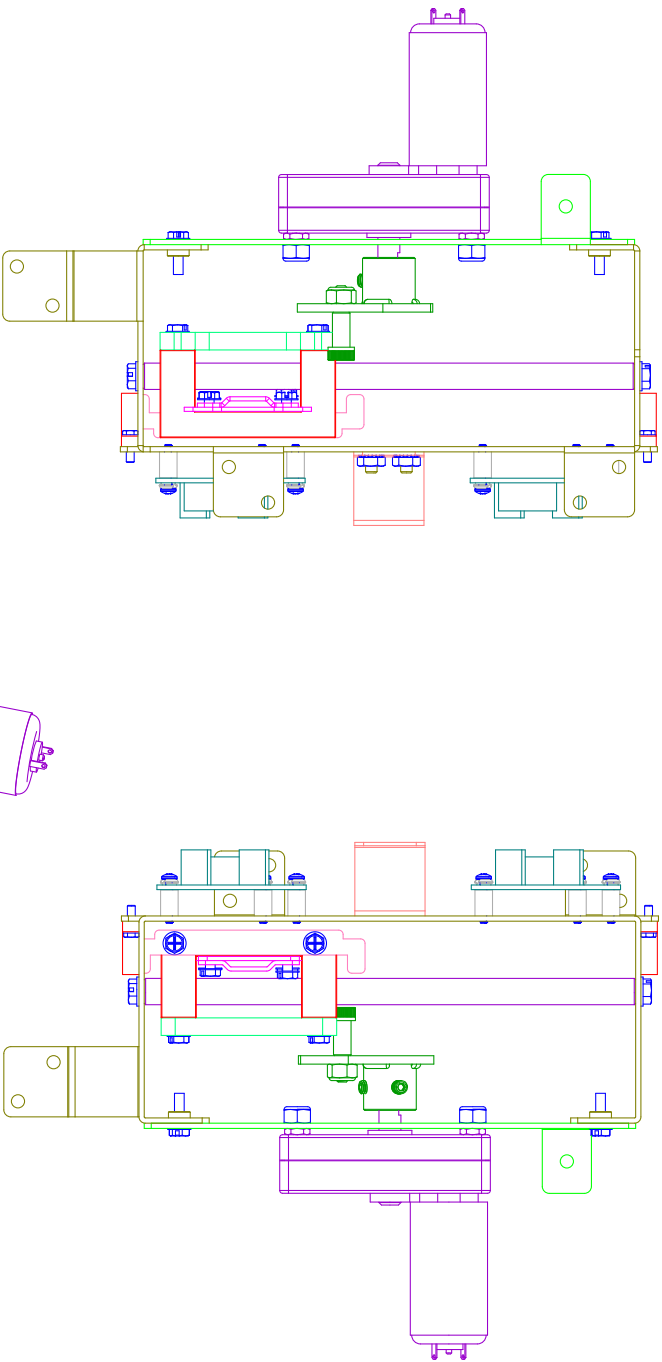
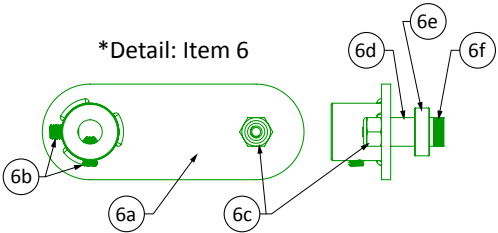
Item	Part Number	Description	Qty
1	11-000007-00	Ball Shooter Rod, Black	1
2	13-007006-00	Ball Shooter Outer Spring	1
3	95-002564-58-16	Flat Washer, 25/64" x 5/8" x 16ga	4
4 CE	14-000001-17	Ball Shooter Housing, DI Purple (-02)	1
LE	14-000001-16	Ball Shooter Housing, DI Blue (-01)	1
Std	14-000001-08	Ball Shooter Housing, Chrome (-00)	1
5	30-000021-00	Ball Shooter Sleeve	1
6	13-007007-06	Ball Shooter Power Spring, Silver, 0.035"	1
7	94-004001-06	3/8" Shaft E-Clip	1
8	25-009003-00	Ball Shooter Tip, Black	1
9	10-000025-00	Ball Shooter Cabinet Mtg Plate	1







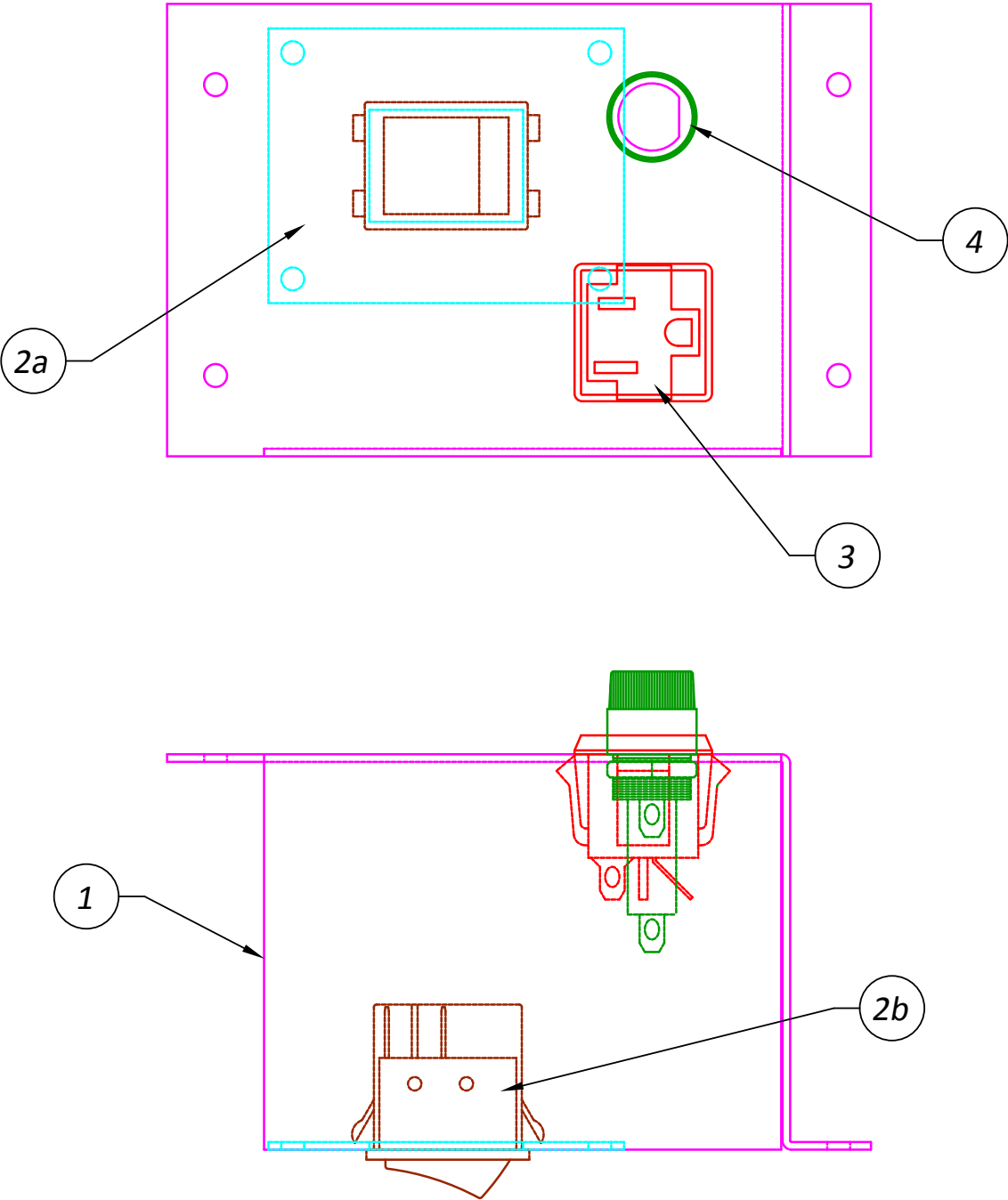
\*Detail: Item 6



# Moving Target Assembly

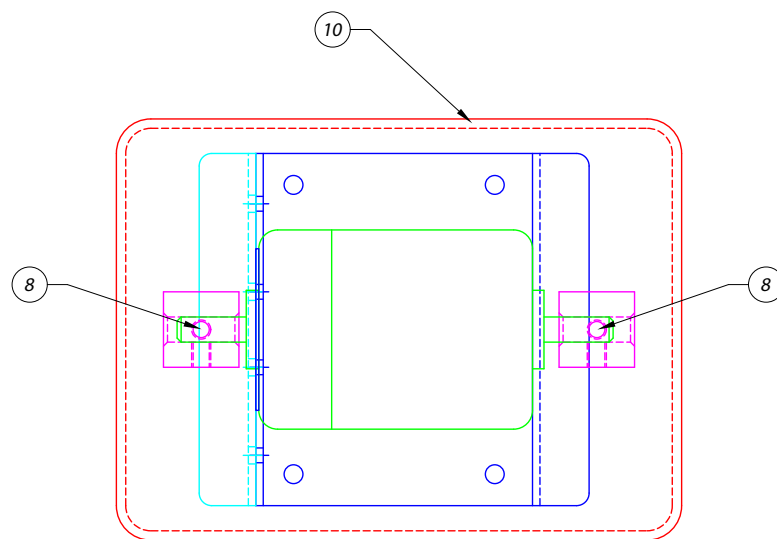
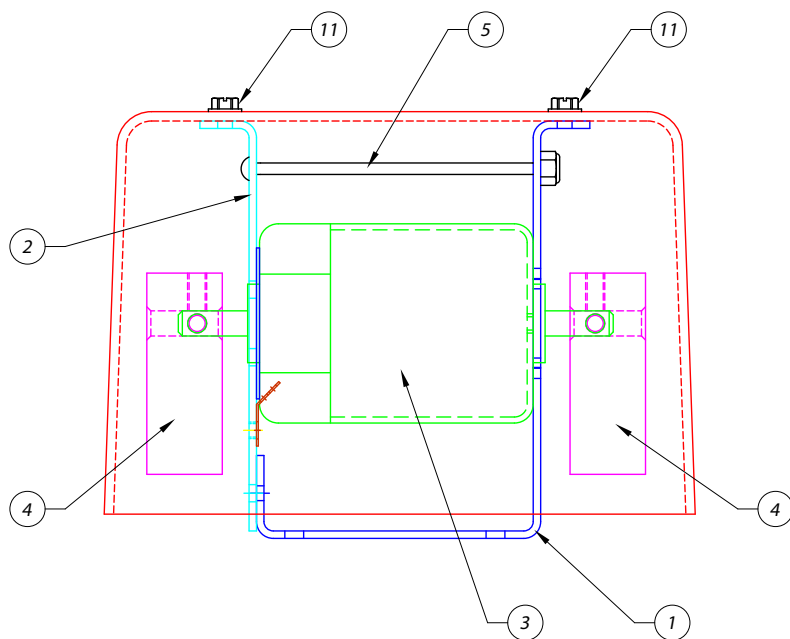
## 51-000081-00

Item	Part Number	Description	Qty	Item	Part Number	Description	Qty
1	10-000211-02	Moving Target Stand-Up Mtg Brkt	1	8	10-000211-04	Moving Target Opto Interrupter Blade	1
2	10-000211-01	Moving Target Rear Brkt	1	9	30-000086-00	Moving Target Cam Follower	1
3	10-000211-00	Moving Target Front Brkt	1	10	91-000010-00	10-32 Nylon Stop Nut	4
4	18-005000-00	U-Shaped Opto, OPB816Z	2	11	80-002008-08	8-32 x 1/2" HWH Phillips MS, Serrated	12
5	23-005009-00	Gear Motor Assy, 12VDC, 8rpm	1	12	80-002010-06	10-32 x 3/8" HWH Phillips MS, Serrated	2
6	51-000081-10	Moving Target Cam Assy	1	13	80-002006-04	6-32 x 1/4" HWH Phillips MS, Serrated	2
a)	11-000043-01	Cam Hub Weldment	1	14	80-000004-10	4-40 x 5/8" PPH MS	8
b)	85-004010-06	10-32 x 3/8" Set Screw, Cup Point	2	15	94-003005-00	#4 x 3/8" Nylon PCB Stand-Off	8
c)	91-000011-00	10-24 Nylon Stop Nut	1	16	15-000007-00	Opto I/O Bd	2
d)	94-003020-05	Round Spacer, 0.25" ID, 0.375" OD, 0.3" L, Alum	1	17	11-000043-00	Moving Target Travel Shaft	1
e)	96-001002-00	Ball Bearing, Double Sealed, 1/4" Shaft, 5/8" OD	1	18	80-002104-06	4-40 x 3/8" HWH MS, Black	4
f)	85-000010-08	10-24 x 1/4" x 1/2" SH Shoulder Bolt	1				
7	10-000211-03	Moving Target Bearing Block Assy	1				

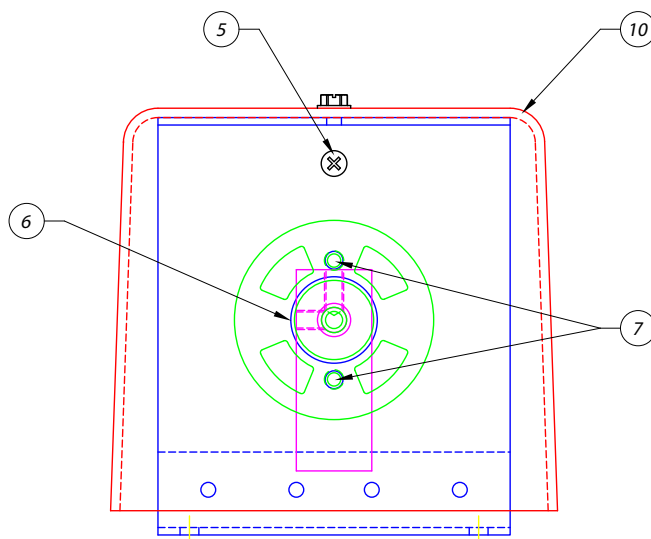
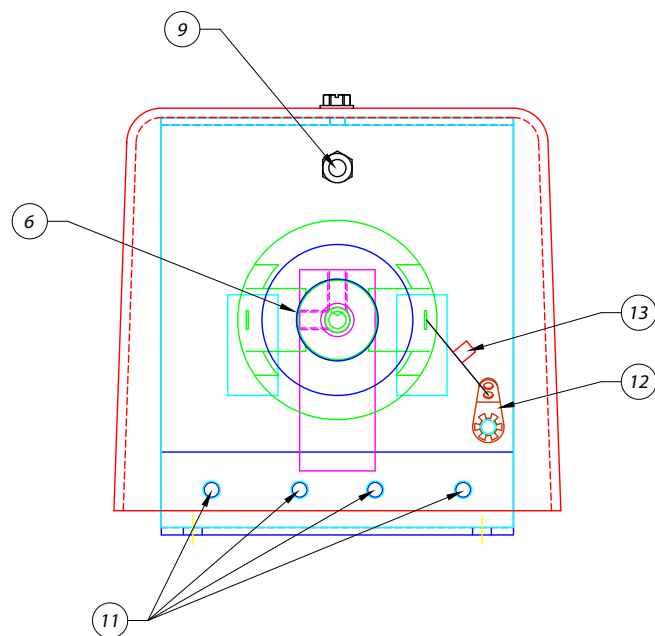


Power Box Assembly  
51-005001-00

Item	Part Number	Description	Qty
1	10-000008-00	Cabinet Metal Power Box	1
2	18-007012-00	On/Off Switch Assy	1
a)	10-000087-00	On/Off Switch Mtg Brkt	1
b)	18-003006-00	On/Off Switch, Rocker Style	1
3	22-000001-00	USA Service Outlet, Snap-In	1
4	22-008000-00	Line Fuse Holder	1
USA	170-000110-SR	Fuse, Slow Blow, 10A, 125V, 0.25" x 1.25", 3AG	1
Euro	170-000205-SR	Fuse, Slow Blow, 5A, 250V, 0.25" x 1.25", 3AG	1
NS	180-000000-00	Varistor, USA	1
NS	180-000002-00	Varistor, Europe	1
NS	180-000001-00	Thermistor, USA	1
NS	180-000003-00	Thermistor, Europe	1



## Shaker Motor Assembly 51-005027-01



Item	Part Number	Description	Qty
1	10-005006-03	Shaker Motor Front Brkt	1
2	10-005006-02	Shaker Motor Mtg Brkt	1
3	23-005003-01	Shaker Motor	1
4	11-000010-00	Eccentric Weight	2
5	80-000006-40	6-32 x 2-3/4" PPH MS	1
6	95-004000-00	Insulator Washer	2
7	80-000010-08	10-32 x 1/2" PPH MS	2
8	85-004008-04	8-32 x 1/4" Set Screw, Black	2
9	91-000006-00	6-32 Nylon Stop Nut	1
10	30-000011-00	Shaker Motor Plastic Cover, White	1
11	80-002008-04	8-32 x 1/4" HWH Phillips MS, Serrated	6
12	90-000007-00	#8 Terminal Lockwasher, Angled	1
13	109-00100M-050	Capacitor, Elect (Radial), 100μF, 50V, 20%	1

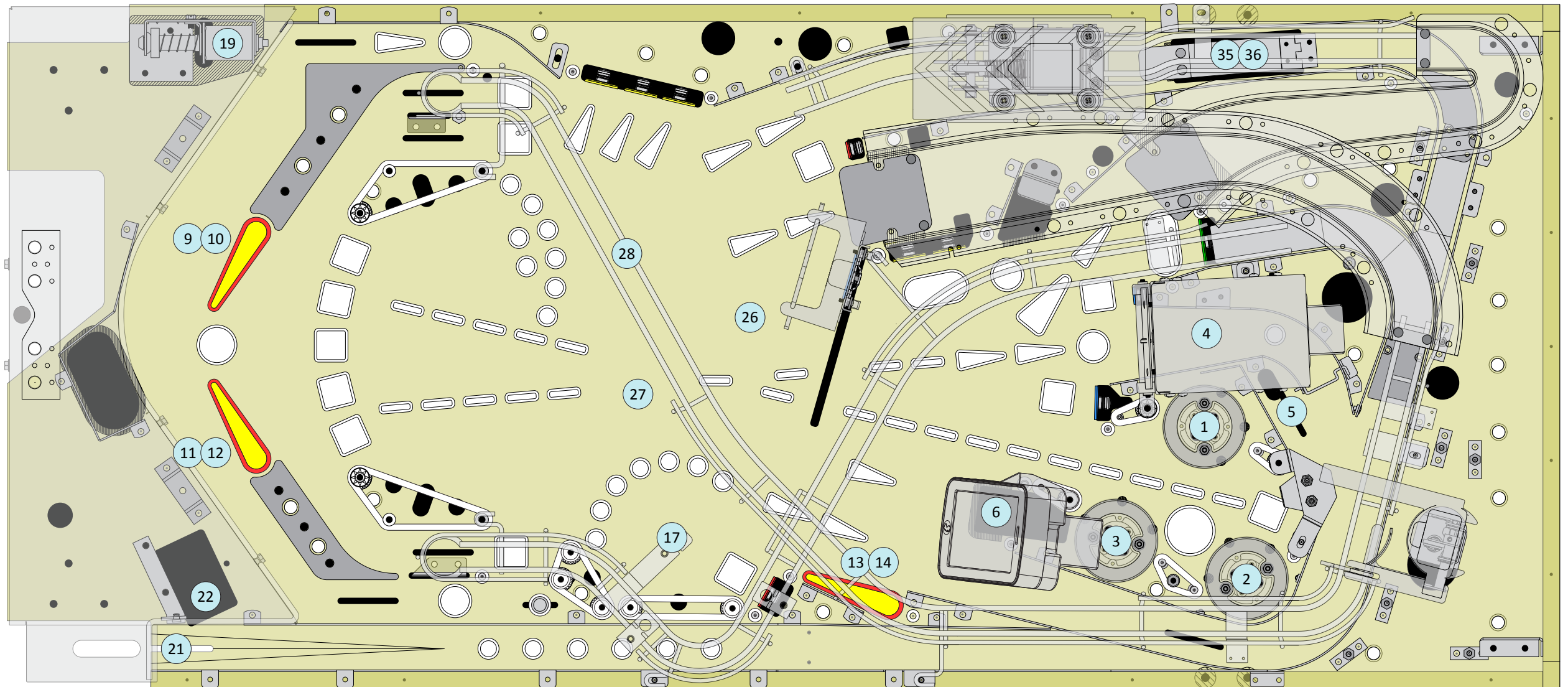
Coil, Motor & Light Table (1 of 2)

Drive #	Coil Function	Coil Type	I/O Bd Power Source	I/O Bd Drive Details	Fuses	Part Number	Part of Assembly	Drawing
1	Left Pop Bumper	26-1200	BRN, J104-1, 70V	BRN-BLK, J104-9, Q308	F701, F704	23-000010-00	51-000004-01	C-
2	Right Pop Bumper	26-1200	BRN, J104-1, 70V	BRN-GRY, J104-8, Q307	F701, F704	23-000010-00	51-000004-01	C-
3	Bottom Pop Bumper	26-1200	BRN, J104-1, 70V	BRN-RED, J104-7, Q306	F701, F704	23-000010-00	51-000004-01	C-
4	Theater Magnet	22-675, Magnet	BRN, J104-1, 70V	BRN-ORN, J104-6, Q305	F701, F704	23-004005-00	51-000024-00	C-
5	Skill Shot Kicker	26-1200	BRN, J104-1, 70V	BRN-YEL, J104-5, Q304	F701, F704	23-000010-00	51-000086-00	C-
6	Phone Scoop Eject	23-800	BRN, J104-1, 70V	BRN-GRN, J104-4, Q303	F701, F704	23-000003-00	51-000083-00	C-
7	Knocker (in backbox)	23-800	BRN, J104-1, 70V	BRN-BLU, J104-3, Q302	F701, F704	23-000003-00	51-000032-01	C-
8	Not Used	-	-	-	-	-	-	-
9	Left Flipper Power	FL-15411	RED, J105-1, 70V	RED-BLK, J105-10, Q318	F701, F705	23-002003-00	51-000002-00	C-
10	Left Flipper Hold	FL-15411	RED, J105-1, 70V	RED-BRN, J105-8, Q317	F701, F705	23-002003-00	51-000002-00	C-
11	Right Flipper Power	FL-15411	RED, J105-1, 70V	RED-GRY, J105-7, Q316	F701, F705	23-002003-00	51-000001-14	C-
12	Right Flipper Hold	FL-15411	RED, J105-1, 70V	RED-ORN, J105-6, Q315	F701, F705	23-002003-00	51-000001-14	C-
13	Upper Right Flipper Power	FL-15411	RED, J105-1, 70V	RED-YEL, J105-5, Q314	F701, F705	23-002003-00	51-000001-14	C-
14	Upper Right Flipper Hold	FL-15411	RED, J105-1, 70V	RED-GRN, J105-4, Q313	F701, F705	23-002003-00	51-000001-14	C-
15, 16	Not Used	-	-	-	-	-	-	-
17	Drone Magnet	22-675, Magnet	ORN, J106-1, 70V	ORN-BLK, J106-10, Q328	F701, F706	23-004005-00	51-000024-00	C-
18	Not Used	-	-	-	-	-	-	-
19	Kickback	23-800	ORN, J106-1, 70V	ORN-RED, J106-7, Q326	F701, F706	23-000003-00	51-000025-00	C-
20	Not Used	-	-	-	-	-	-	-
21	Ball Auto-Launch	23-800	ORN, J106-1, 70V	ORN-YEL, J106-5, Q324	F701, F706	23-000003-00	51-000026-00	C-
22	5-Ball Trough VUK	26-1200	ORN, J106-1, 70V	ORN-GRN, J106-4, Q323	F701, F706	23-000010-00	52-000021-00	C-
23-25	Not Used	-	-	-	-	-	-	-
26	Upper Magnet	22-675, Magnet	TAN, J107-1, 70V	TAN-BRN, J107-9, Q337	F702, F707	23-004005-00	51-000024-01	C-
27	Right Magnet	22-675, Magnet	TAN, J107-1, 70V	TAN-RED, J107-8, Q336	F702, F707	23-004005-00	51-000024-01	C-
28	Left Magnet	22-675, Magnet	TAN, J107-1, 70V	TAN-ORN, J107-6, Q335	F702, F707	23-004005-00	51-000024-01	C-
29-34	Not Used	-	-	-	-	-	-	-
35	Bob Trap Door Latch Release	26-600, Mini	PNK, J108-1, 70V	PNK-RED, J108-8, Q406	F702, F708	23-003008-00	51-000082-00	C-
36	Bob Trap Door Open	26-1500	PNK, J108-1, 70V	PNK-ORN, J108-7, Q405	F702, F708	23-000015-00	51-000082-00	C-
37-40	Not Used	-	-	-	-	-	-	-
41	Moving Target Motor	Motor	YEL, J109-1, 12V	YEL-BLK, J109-2, Q411	F714, F709	23-005009-00	51-000081-00	C-
42	Moving Target Relay	Relay	YEL, J109-1, 12V	YEL-BRN, J109-3, Q412	F714, F709	160-000000-0T	15-000009-00	D-
43	Not Used	-	-	-	-	-	-	-



# Coil, Motor & Light Table (2 of 2)

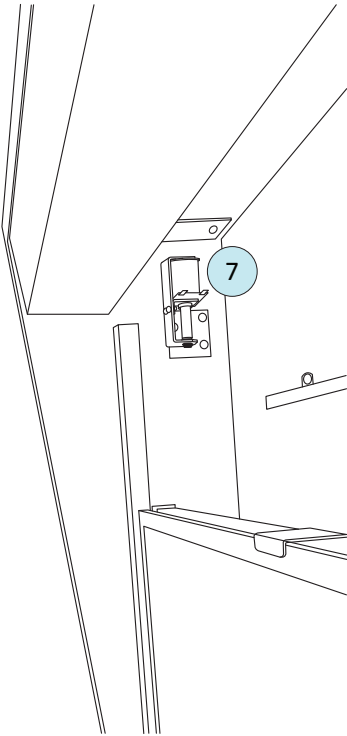
Drive #	Coil Function	Coil Type	I/O Bd Power Source	I/O Bd Drive Details	Fuses	Part Number	Part of Assembly	Drawing
44	Betty Spotlight	LED	YEL, J109-1, 12V	YEL-ORN, J109-6, Q414	F714, F709	24-000017-00	-	-
45	Betty Diverter Motor	Motor	YEL, J109-1, 12V	YEL-GRY, J109-7, Q415	F714, F709	23-005009-00	52-000056-00	C-
46	Top Drone Motor	Motor	YEL, J109-1, 12V	YEL-GRN, J109-8, Q416	F714, F709	23-005010-00	13-002005-00	C-
47	Center Drone Motor	Motor	YEL, J109-1, 12V	YEL-BLU, J109-9, Q417	F714, F709	23-005010-00	13-002005-00	C-
48	Bottom Drone Motor	Motor	YEL, J109-1, 12V	YEL-VIO, J109-10, Q418	F714, F709	23-005010-00	13-002005-00	C-
49-56	Not Used	-	-	-	-	-	-	-
57	Ramp Ball Lock Release	26-1500	BLU, J111-1, 20V	BLU-BLK, J111-2, Q431	F703, F711	23-000015-00	52-000054-00	C-
58	Left Slingshot	23-800	BLU, J111-1, 20V	BLU-BRN, J111-4, Q432	F703, F711	23-000003-00	51-000003-00	C-
59	Right Slingshot	23-800	BLU, J111-1, 20V	BLU-RED, J111-5, Q433	F703, F711	23-000003-00	51-000003-00	C-
60-72	Not Used	-	-	-	-	-	-	-
73	Shaker Motor	Motor	LT BLU, J113-2, 12V	LT BLU-GRY, J113-3, Q511	F714, F713	23-005003-00	51-005027-01	C-
74	Not Used	-	-	-	-	-	-	-
75	Redemption Ticket Motor	Motor	LT BLU, J113-2, 12V	LT BLU-GRY, J113-5, Q513	F714, F713	-	-	-
76-78	Not Used	-	-	-	-	-	-	-
79	Start Button Light	LED	LT BLU, J113-2, 12V	LT BLU-GRY, J113-9, Q517	F714, F713	24-000017-00	18-007005-04	-
80	Flash Bulb Topper	LED	LT BLU, J113-2, 12V	LT BLU-VIO, J113-10, Q518	F714, F713	15-000027-01	51-005048-00	C-

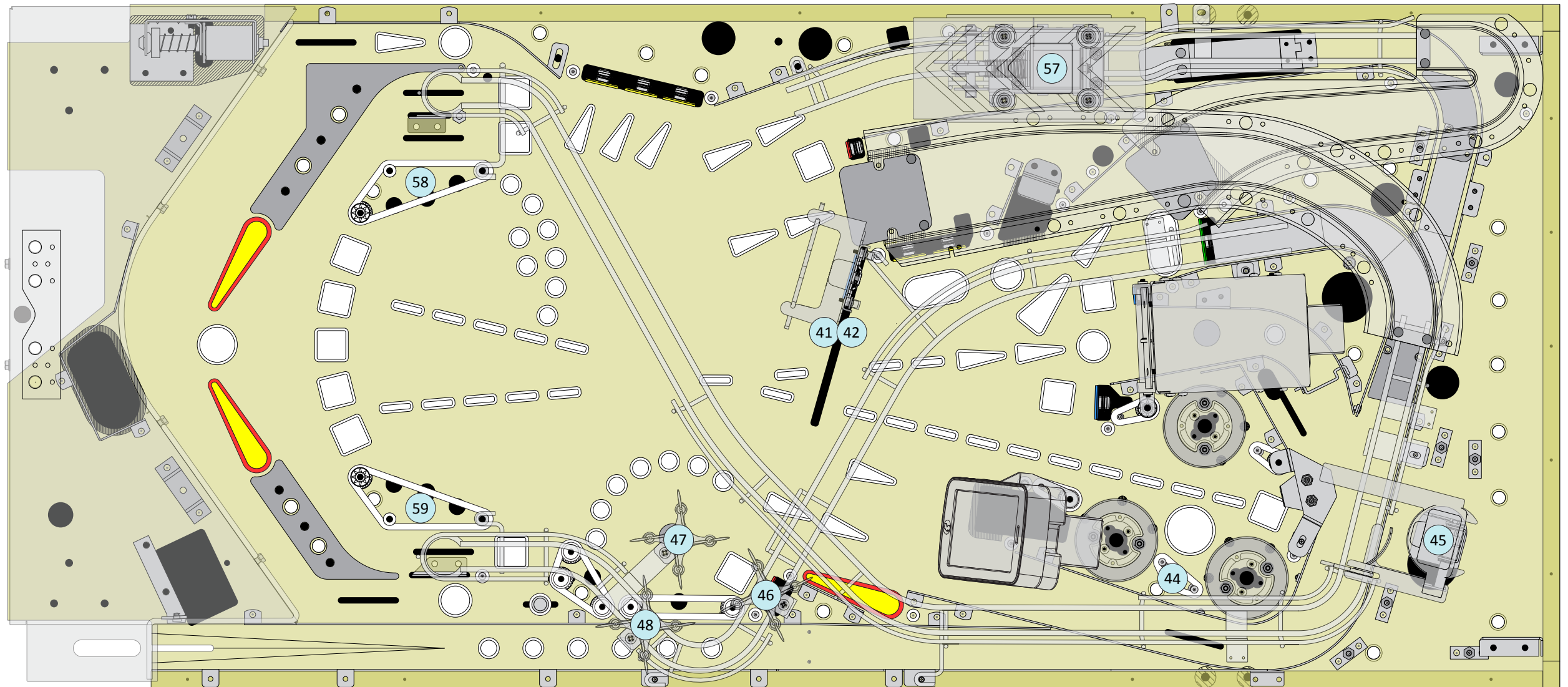


# 70-Volt Coil Locations

## Above Playfield

Drive	Coil Function	Part Number	Part of Assembly	Drawing
1	Left Pop Bumper	23-000010-00	51-000004-01	C-
2	Right Pop Bumper	23-000010-00	51-000004-01	C-
3	Bottom Pop Bumper	23-000010-00	51-000004-01	C-
4	Theater Magnet	23-004005-00	51-000024-00	C-
5	Skill Shot Kicker	23-000010-00	51-000086-00	C-
6	Phone Scoop Eject	23-000003-00	51-000083-00	C-
7	Knocker (in backbox)	23-000003-00	51-000032-01	C-
9	Left Flipper Power	23-002003-00	51-000002-00	C-
10	Left Flipper Hold	23-002003-00	51-000002-00	C-
11	Right Flipper Power	23-002003-00	51-000001-14	C-
12	Right Flipper Hold	23-002003-00	51-000001-14	C-
13	Upper Right Flipper Power	23-002003-00	51-000001-14	C-
14	Upper Right Flipper Hold	23-002003-00	51-000001-14	C-
17	Drone Magnet	23-004005-00	51-000024-00	C-
19	Kickback	23-000003-00	51-000025-00	C-
21	Ball Auto-Launch	23-000003-00	51-000026-00	C-
22	5-Ball Trough VUK	23-000010-00	52-000021-00	C-
26	Upper Magnet	23-004005-00	51-000024-01	C-
27	Right Magnet	23-004005-00	51-000024-01	C-
28	Left Magnet	23-004005-00	51-000024-01	C-
35	Bob Trap Door Latch Release	23-003008-00	51-000082-00	C-
36	Bob Trap Door Open	23-000015-00	51-000082-00	C-

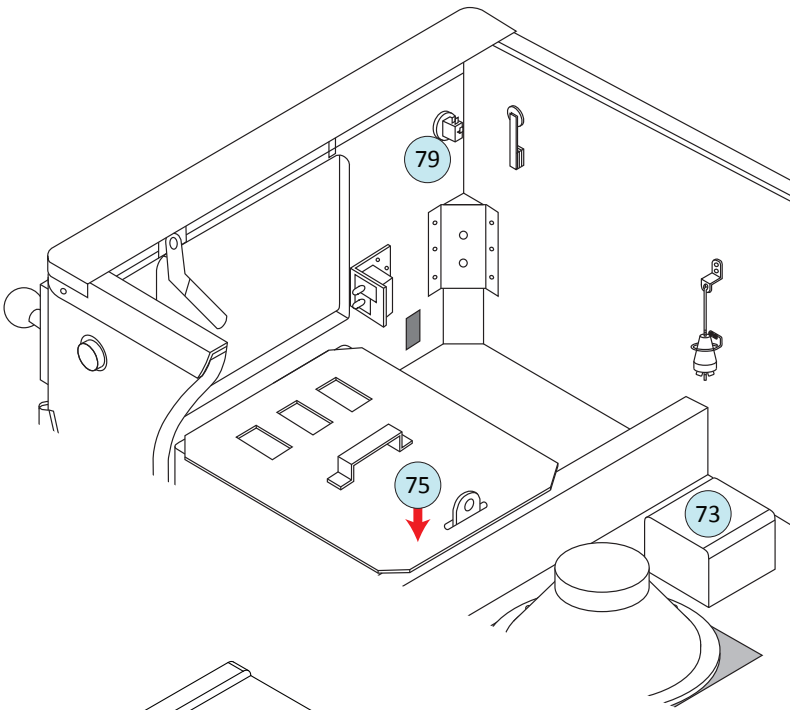




## 20-Volt Coil Locations

### Above Playfield

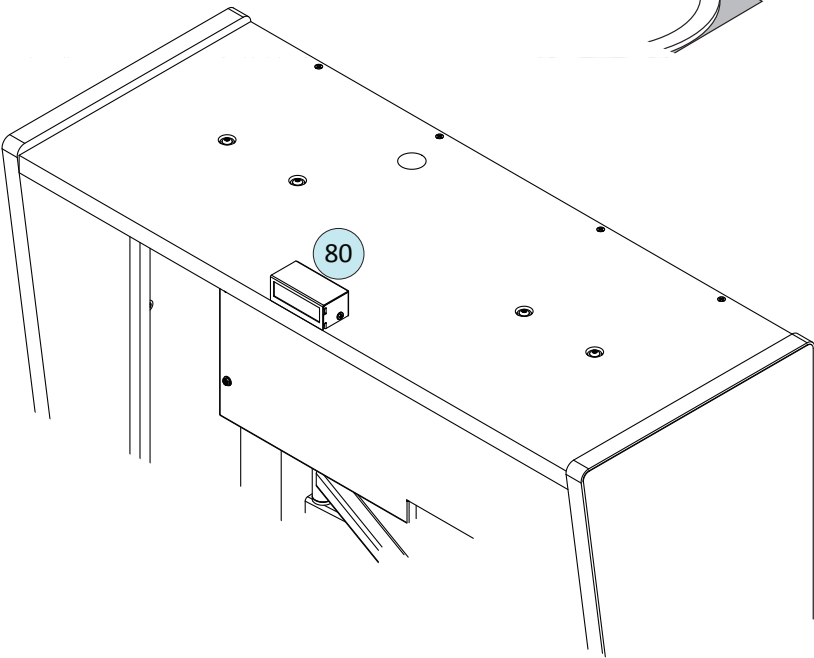
Drive	Function	Part Number	Part of Assembly	Drawing
57	Ramp Ball Lock Release	23-000015-00	52-000054-00	C-
58	Left Slingshot	23-000003-00	51-000003-00	C-
59	Right Slingshot	23-000003-00	51-000003-00	C-



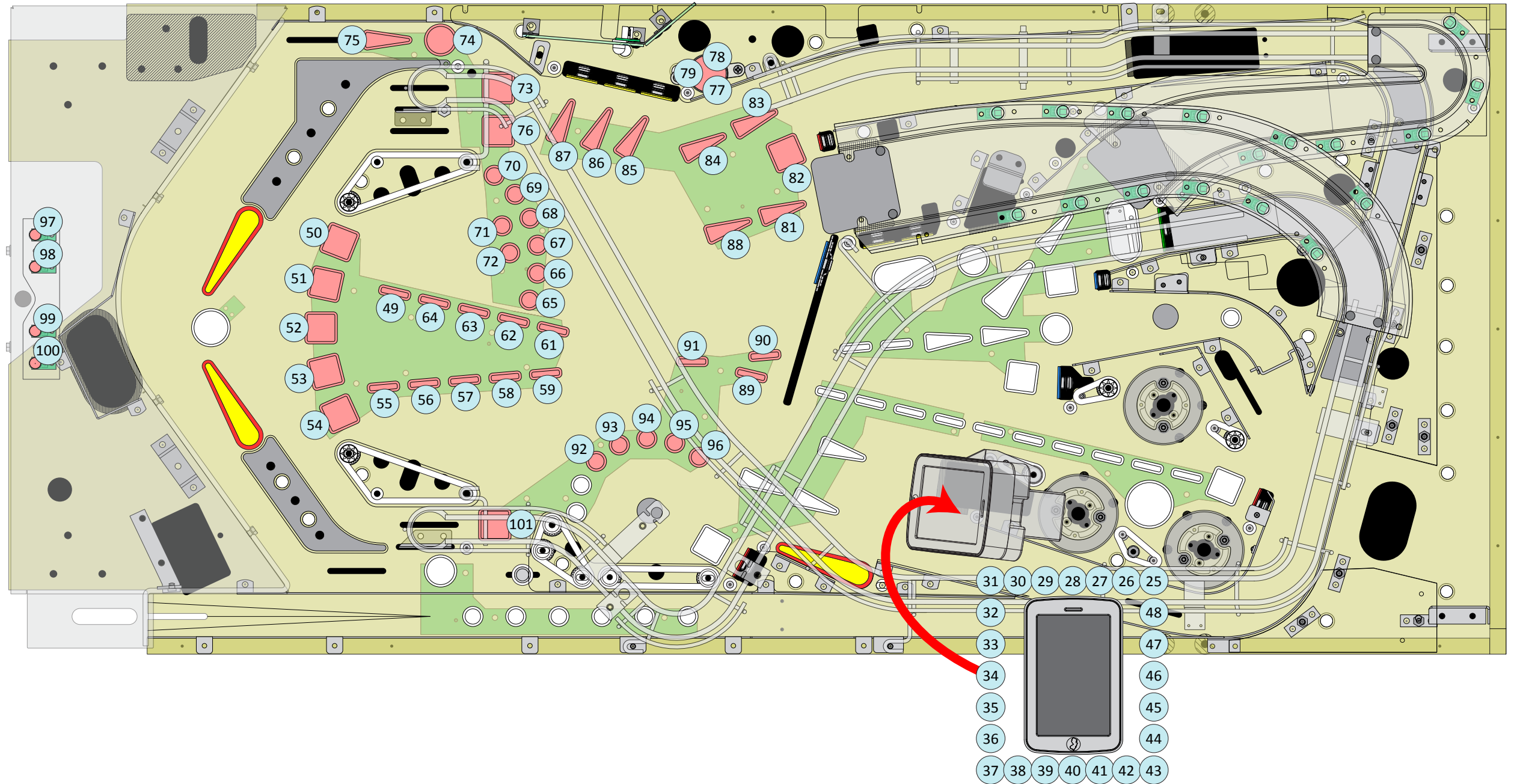
## 12-Volt Motor & Light Locations

### Above Playfield

Drive	Function	Part Number	Part of Assembly	Drawing
41	Moving Target Motor	23-005009-00	51-000081-00	C-
42	Moving Target Relay	160-000000-0T	15-000009-00	D-
44	Betty Spotlight	24-000017-00	-	-
45	Betty Diverter Motor	23-005009-00	52-000056-00	C-
46	Top Drone Motor	23-005010-00	13-002005-00	C-
47	Center Drone Motor	23-005010-00	13-002005-00	C-
48	Bottom Drone Motor	23-005010-00	13-002005-00	C-
75	Redemption Ticket Motor (under cabinet)	-	-	-
79	Start Button Light (front of cabinet)	24-000017-00	18-007005-04	-
80 Std	Flash Bulb Topper (on top of backbox)	15-000027-01	51-005048-00	C-



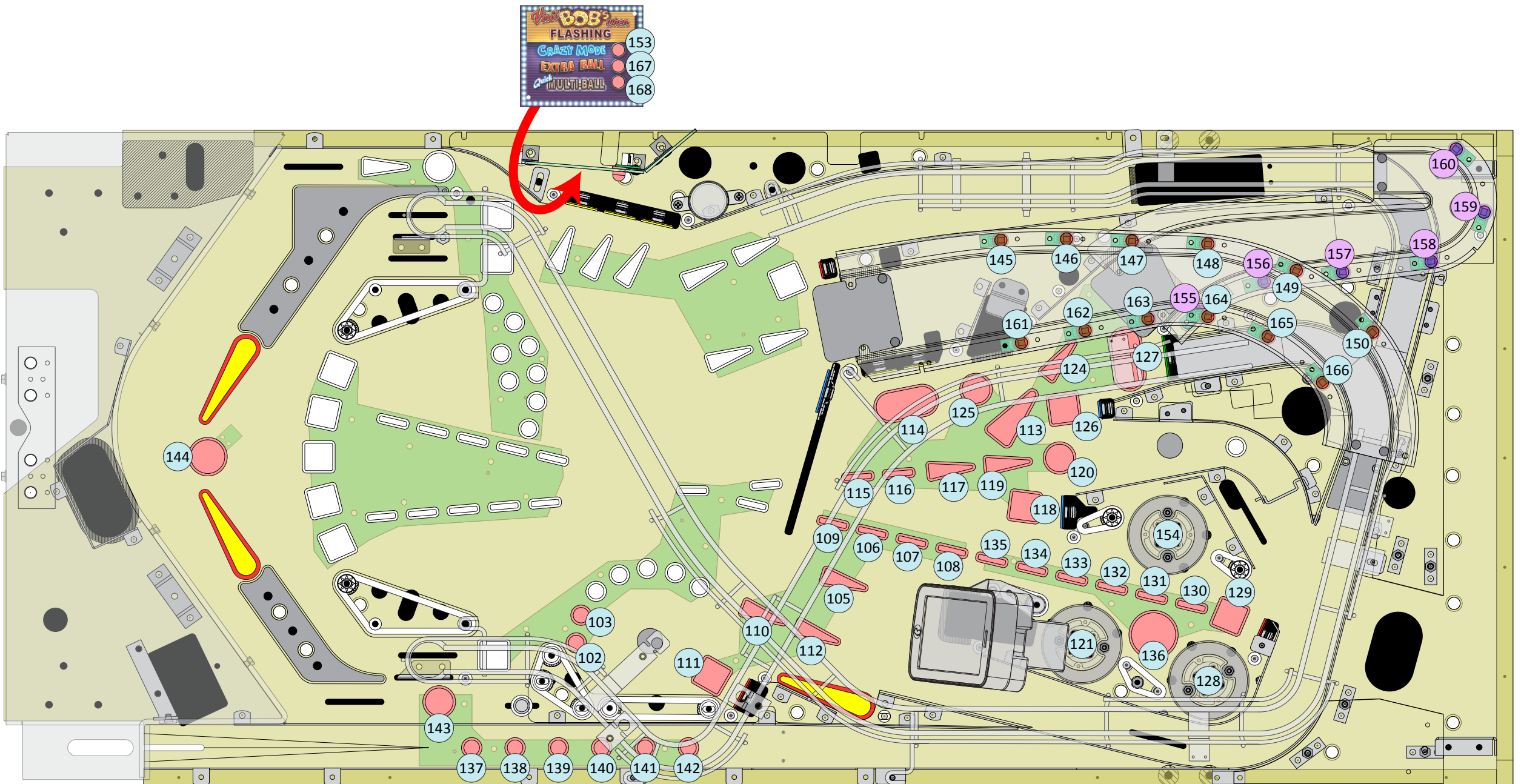




# Playfield Feature Lighting (RGB LEDs)

## Above Playfield (1 of 2)































































RGB#	Location/Function	RGB LED Bd	RGB#	Location/Function	RGB LED Bd	RGB#	Location/Function	RGB LED Bd
25	Smartphone #1 (upper right)	15-000042-00	50	Charge Phone	15-000053-01	76	Lite Drone	15-000053-02
26	Smartphone #2 (top)	15-000042-00	51	Disaster	15-000053-01	77	Beacon Flasher #1	15-000030-02
27	Smartphone #3 (top)	15-000042-00	52	Lock W/ Lit	15-000053-01	78	Beacon Flasher #2	15-000030-02
28	Smartphone #4 (top)	15-000042-00	53	Under Attack!	15-000053-01	79	Beacon Flasher #3	15-000030-02
29	Smartphone #5 (top)	15-000042-00	54	Armageddon	15-000053-01	81	Train 1 Arrow	15-000053-03
30	Smartphone #6 (top)	15-000042-00	55	D.I.E. Laserbeam #9 (low)	15-000053-01	82	Spider	15-000053-03
31	Smartphone #7 (upper left)	15-000042-00	56	D.I.E. Laserbeam #8	15-000053-01	83	Bob Arrow	15-000053-03
32	Smartphone #8 (left side)	15-000042-00	57	D.I.E. Laserbeam #7	15-000053-01	84	2 <sup>nd</sup> Bob Arrow	15-000053-03
33	Smartphone #9 (left side)	15-000042-00	58	D.I.E. Laserbeam #6	15-000053-01	85	BOB	15-000053-03
34	Smartphone #10 (left side)	15-000042-00	59	D.I.E. Laserbeam #5	15-000053-01	86	BOB	15-000053-03
35	Smartphone #11 (left side)	15-000042-00	61	Wrench Laserbeam #12	15-000053-01	87	BOB	15-000053-03
36	Smartphone #12 (left side)	15-000042-00	62	Wrench Laserbeam #13	15-000053-01	88	2 <sup>nd</sup> Train 1 Arrow	15-000053-03
37	Smartphone #13 (lower left)	15-000042-00	63	Wrench Laserbeam #14	15-000053-01	89	Wrench Laserbeam #11	15-000053-04
38	Smartphone #14 (bottom)	15-000042-00	64	Wrench Laserbeam #15	15-000053-01	90	D.I.E. Laserbeam #3	15-000053-04
39	Smartphone #15 (bottom)	15-000042-00	65	DIALED IN	15-000053-02	91	D.I.E. Laserbeam #4	15-000053-04
40	Smartphone #16 (bottom)	15-000042-00	66	DIALED IN	15-000053-02	92	Package Delivery #5	15-000053-04
41	Smartphone #17 (bottom)	15-000042-00	67	DIALED IN	15-000053-02	93	Package Delivery #4	15-000053-04
42	Smartphone #18 (bottom)	15-000042-00	68	DIALED IN	15-000053-02	94	Package Delivery #3	15-000053-04
43	Smartphone #19 (lower right)	15-000042-00	69	DIALED IN	15-000053-02	95	Package Delivery #2	15-000053-04
44	Smartphone #20 (right side)	15-000042-00	70	DIALED IN	15-000053-02	96	Package Delivery #1 (high)	15-000053-04
45	Smartphone #21 (right side)	15-000042-00	71	DIALED IN	15-000053-02	97	Bottom Arch #1 (left)	15-000053-04, J402
46	Smartphone #22 (right side)	15-000042-00	72	DIALED IN	15-000053-02	98	Bottom Arch #2	15-000053-04, J402
47	Smartphone #23 (right side)	15-000042-00	73	Hurry Up!	15-000053-02	99	Bottom Arch #3	15-000053-04, J402
48	Smartphone #24 (right side)	15-000042-00	74	Special (left)	15-000053-02	100	Bottom Arch #4 (right)	15-000053-04, J402
49	Wrench Laserbeam #16 (low)	15-000053-01	75	Kickback	15-000053-02	101	10K+	15-000053-04

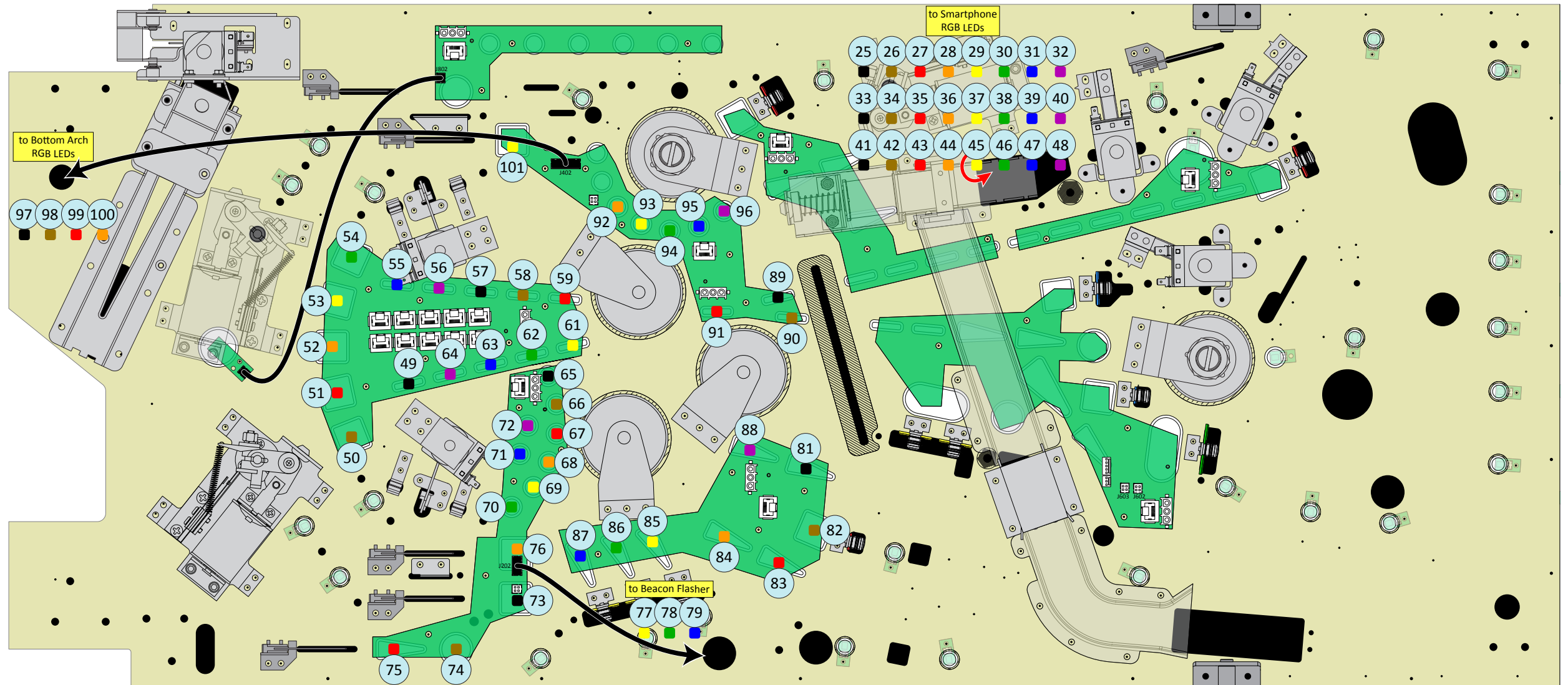




# Playfield Feature Lighting (RGB LEDs)

## *Above Playfield (2 of 2)*

RGB#	Location/Function	RGB LED Bd	RGB#	Location/Function	RGB LED Bd	RGB#	Location/Function	RGB LED Bd
102	 Package Delivery #7 (low)	15-000053-04	130	 Wrench Laserbeam #1 (high)	15-000053-07	157	 Upper Left Ramp #4	15-000031-01, J102
103	 Package Delivery #6	15-000053-04	131	 Wrench Laserbeam #2	15-000053-07	158	 Upper Left Ramp #3	15-000031-01, J102
105	 Phone Arrow	15-000053-05	132	 Wrench Laserbeam #3	15-000053-07	159	 Upper Left Ramp #2	15-000031-01, J102
106	 Wrench Laserbeam #9	15-000053-05	133	 Wrench Laserbeam #4	15-000053-07	160	 Upper Left Ramp #1 (high)	15-000031-01, J102
107	 Wrench Laserbeam #8	15-000053-05	134	 Wrench Laserbeam #5	15-000053-07	161	 Left Ramp #12 (right, low)	15-000031-01, J103
108	 Wrench Laserbeam #7	15-000053-05	135	 Wrench Laserbeam #6	15-000053-07	162	 Left Ramp #11	15-000031-01, J103
109	 Wrench Laserbeam #10	15-000053-05	136	 Super Jets W/ Flashing	15-000053-07	163	 Left Ramp #10	15-000031-01, J103
110	 2 <sup>nd</sup> Train 2 Arrow	15-000053-05	137	 Hold Spider	15-000053-08	164	 Left Ramp #9	15-000031-01, J103
111	 Drone	15-000053-05	138	 Hold Bonus X	15-000053-08	165	 Left Ramp #8	15-000031-01, J103
112	 Train 2 Arrow	15-000053-05	139	 Hold Transit	15-000053-08	166	 Left Ramp #7 (right, high)	15-000031-01, J103
113	 Lock Arrow	15-000053-06	140	 Hold Kilowatts	15-000053-08	167	 Extra Ball (PF sign)	15-000031-01, J103
114	 Lite Big Bang	15-000053-06	141	 Hold Drones	15-000053-08	168	 Quick Multiball (PF sign)	15-000031-01, J103
115	 D.I.E. Laserbeam #2	15-000053-06	142	 Big Points	15-000053-08			
116	 D.I.E. Laserbeam #1 (high)	15-000053-06	143	 Special (right)	15-000053-08			
117	 2 <sup>nd</sup> ? Arrow	15-000053-06	144	 Shoot Again	15-000053-08, J802			
118	 Theater <b>TICKET</b>	15-000053-06	145	 Left Ramp #6 (left, low)	15-000031-01, J101			
119	 ? Arrow	15-000053-06	146	 Left Ramp #5	15-000031-01, J101			
120	 D.I.E.	15-000053-06	147	 Left Ramp #4	15-000031-01, J101			
121	 Bottom Pop Bumper	15-000053-06, J603	148	 Left Ramp #3	15-000031-01, J101			
124	 2 <sup>nd</sup> Lock Arrow	15-000053-06	149	 Left Ramp #2	15-000031-01, J101			
125	 Sim Card	15-000053-06	150	 Left Ramp #1 (left, high)	15-000031-01, J101			
126	 Theater <b>TICKET</b>	15-000053-06	153	 Crazy Mode (PF sign)	15-000031-01, J102			
127	 Big Bang!	15-000053-06	154	 Left Pop Bumper	15-000031-01, J102			
128	 Right Pop Bumper	15-000053-06, J602	155	 Upper Left Ramp #6 (low)	15-000031-01, J102			
129	 Wrench	15-000053-07	156	 Upper Left Ramp #5	15-000031-01, J102			

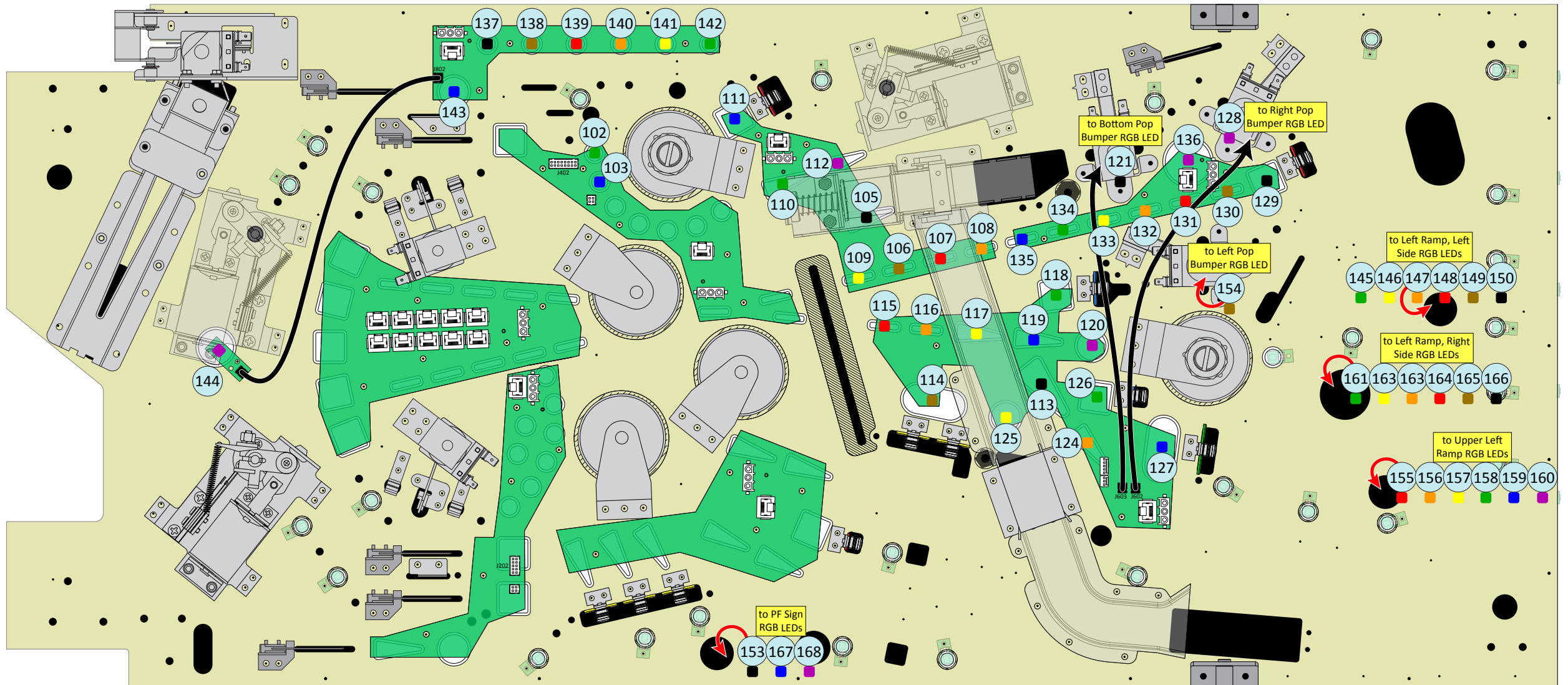




# Playfield Feature Lighting (RGB LEDs)




























































## Under Playfield (1 of 2)

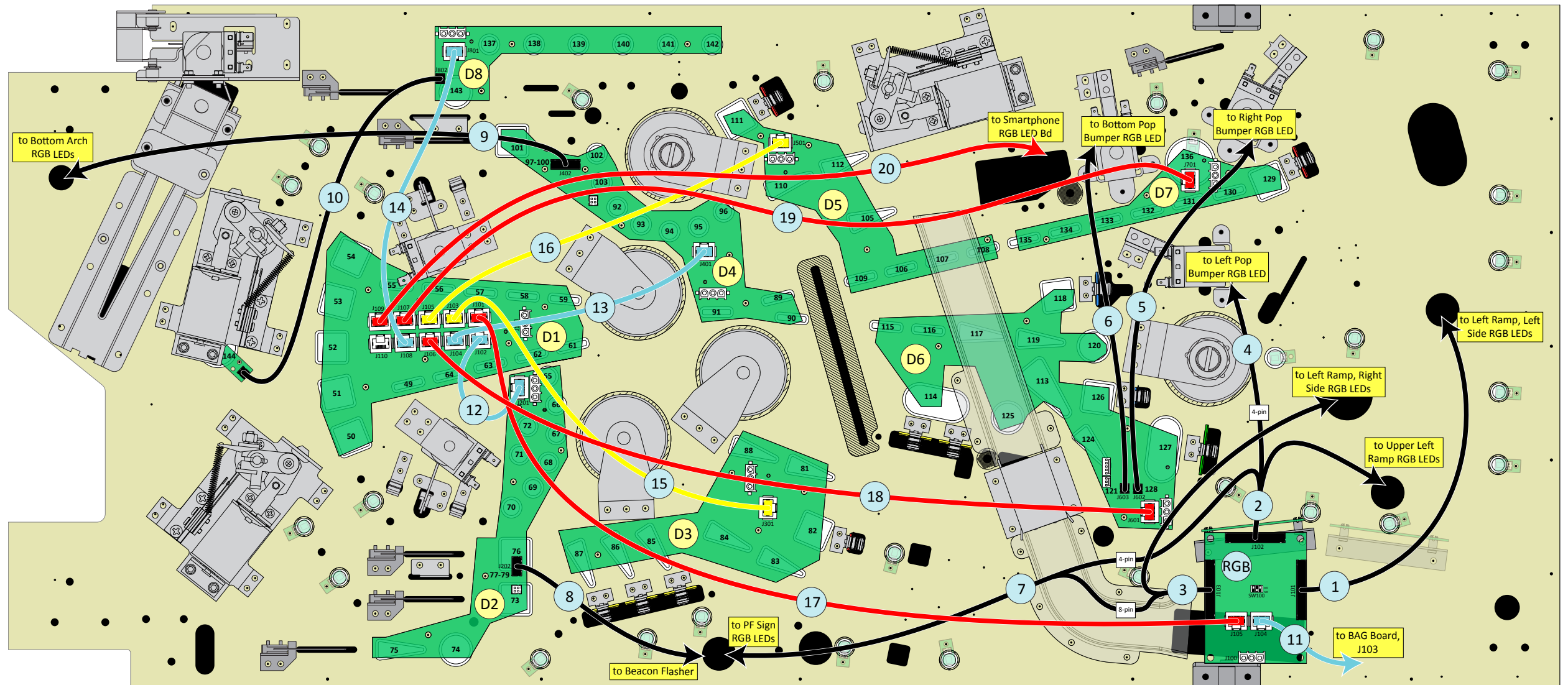
RGB#	Location/Function	RGB LED Bd	RGB#	Location/Function	RGB LED Bd	RGB#	Location/Function	RGB LED Bd
25	Smartphone #1 (upper right)	15-000042-00	50	Charge Phone	15-000053-01	76	Lite Drone	15-000053-02
26	Smartphone #2 (top)	15-000042-00	51	Disaster	15-000053-01	77	Beacon Flasher #1	15-000030-02
27	Smartphone #3 (top)	15-000042-00	52	Lock W/ Lit	15-000053-01	78	Beacon Flasher #2	15-000030-02
28	Smartphone #4 (top)	15-000042-00	53	Under Attack!	15-000053-01	79	Beacon Flasher #3	15-000030-02
29	Smartphone #5 (top)	15-000042-00	54	Armageddon	15-000053-01	81	Train 1 Arrow	15-000053-03
30	Smartphone #6 (top)	15-000042-00	55	D.I.E. Laserbeam #9 (low)	15-000053-01	82	Spider	15-000053-03
31	Smartphone #7 (upper left)	15-000042-00	56	D.I.E. Laserbeam #8	15-000053-01	83	Bob Arrow	15-000053-03
32	Smartphone #8 (left side)	15-000042-00	57	D.I.E. Laserbeam #7	15-000053-01	84	2 <sup>nd</sup> Bob Arrow	15-000053-03
33	Smartphone #9 (left side)	15-000042-00	58	D.I.E. Laserbeam #6	15-000053-01	85	BOB	15-000053-03
34	Smartphone #10 (left side)	15-000042-00	59	D.I.E. Laserbeam #5	15-000053-01	86	BOB	15-000053-03
35	Smartphone #11 (left side)	15-000042-00	61	Wrench Laserbeam #12	15-000053-01	87	BOB	15-000053-03
36	Smartphone #12 (left side)	15-000042-00	62	Wrench Laserbeam #13	15-000053-01	88	2 <sup>nd</sup> Train 1 Arrow	15-000053-03
37	Smartphone #13 (lower left)	15-000042-00	63	Wrench Laserbeam #14	15-000053-01	89	Wrench Laserbeam #11	15-000053-04
38	Smartphone #14 (bottom)	15-000042-00	64	Wrench Laserbeam #15	15-000053-01	90	D.I.E. Laserbeam #3	15-000053-04
39	Smartphone #15 (bottom)	15-000042-00	65	DIALED IN	15-000053-02	91	D.I.E. Laserbeam #4	15-000053-04
40	Smartphone #16 (bottom)	15-000042-00	66	DIALED IN	15-000053-02	92	Package Delivery #5	15-000053-04
41	Smartphone #17 (bottom)	15-000042-00	67	DIALED IN	15-000053-02	93	Package Delivery #4	15-000053-04
42	Smartphone #18 (bottom)	15-000042-00	68	DIALED IN	15-000053-02	94	Package Delivery #3	15-000053-04
43	Smartphone #19 (lower right)	15-000042-00	69	DIALED IN	15-000053-02	95	Package Delivery #2	15-000053-04
44	Smartphone #20 (right side)	15-000042-00	70	DIALED IN	15-000053-02	96	Package Delivery #1 (high)	15-000053-04
45	Smartphone #21 (right side)	15-000042-00	71	DIALED IN	15-000053-02	97	Bottom Arch #1 (left)	15-000053-04, J402
46	Smartphone #22 (right side)	15-000042-00	72	DIALED IN	15-000053-02	98	Bottom Arch #2	15-000053-04, J402
47	Smartphone #23 (right side)	15-000042-00	73	Hurry Up!	15-000053-02	99	Bottom Arch #3	15-000053-04, J402
48	Smartphone #24 (right side)	15-000042-00	74	Special (left)	15-000053-02	100	Bottom Arch #4 (right)	15-000053-04, J402
49	Wrench Laserbeam #16 (low)	15-000053-01	75	Kickback	15-000053-02	101	10K+	15-000053-04



# Playfield Feature Lighting (RGB LEDs)

## *Under Playfield (2 of 2)*

RGB#	Location/Function	RGB LED Bd	RGB#	Location/Function	RGB LED Bd	RGB#	Location/Function	RGB LED Bd
102	 Package Delivery #7 (low)	15-000053-04	130	 Wrench Laserbeam #1 (high)	15-000053-07	157	 Upper Left Ramp #4	15-000031-01, J102
103	 Package Delivery #6	15-000053-04	131	 Wrench Laserbeam #2	15-000053-07	158	 Upper Left Ramp #3	15-000031-01, J102
105	 Phone Arrow	15-000053-05	132	 Wrench Laserbeam #3	15-000053-07	159	 Upper Left Ramp #2	15-000031-01, J102
106	 Wrench Laserbeam #9	15-000053-05	133	 Wrench Laserbeam #4	15-000053-07	160	 Upper Left Ramp #1 (high)	15-000031-01, J102
107	 Wrench Laserbeam #8	15-000053-05	134	 Wrench Laserbeam #5	15-000053-07	161	 Left Ramp #12 (right, low)	15-000031-01, J103
108	 Wrench Laserbeam #7	15-000053-05	135	 Wrench Laserbeam #6	15-000053-07	162	 Left Ramp #11	15-000031-01, J103
109	 Wrench Laserbeam #10	15-000053-05	136	 Super Jets W/ Flashing	15-000053-07	163	 Left Ramp #10	15-000031-01, J103
110	 2 <sup>nd</sup> Train 2 Arrow	15-000053-05	137	 Hold Spider	15-000053-08	164	 Left Ramp #9	15-000031-01, J103
111	 Drone	15-000053-05	138	 Hold Bonus X	15-000053-08	165	 Left Ramp #8	15-000031-01, J103
112	 Train 2 Arrow	15-000053-05	139	 Hold Transit	15-000053-08	166	 Left Ramp #7 (right, high)	15-000031-01, J103
113	 Lock Arrow	15-000053-06	140	 Hold Kilowatts	15-000053-08	167	 Extra Ball (PF sign)	15-000031-01, J103
114	 Lite Big Bang	15-000053-06	141	 Hold Drones	15-000053-08	168	 Quick Multiball (PF sign)	15-000031-01, J103
115	 D.I.E. Laserbeam #2	15-000053-06	142	 Big Points	15-000053-08			
116	 D.I.E. Laserbeam #1 (high)	15-000053-06	143	 Special (right)	15-000053-08			
117	 2 <sup>nd</sup> ? Arrow	15-000053-06	144	 Shoot Again	15-000053-08, J802			
118	 Theater <b>TICKET</b>	15-000053-06	145	 Left Ramp #6 (left, low)	15-000031-01, J101			
119	 ? Arrow	15-000053-06	146	 Left Ramp #5	15-000031-01, J101			
120	 D.I.E.	15-000053-06	147	 Left Ramp #4	15-000031-01, J101			
121	 Bottom Pop Bumper	15-000053-06, J603	148	 Left Ramp #3	15-000031-01, J101			
124	 2 <sup>nd</sup> Lock Arrow	15-000053-06	149	 Left Ramp #2	15-000031-01, J101			
125	 Sim Card	15-000053-06	150	 Left Ramp #1 (left, high)	15-000031-01, J101			
126	 Theater <b>TICKET</b>	15-000053-06	153	 Crazy Mode (PF sign)	15-000031-01, J102			
127	 Big Bang!	15-000053-06	154	 Left Pop Bumper	15-000031-01, J102			
128	 Right Pop Bumper	15-000053-06, J602	155	 Upper Left Ramp #6 (low)	15-000031-01, J102			
129	 Wrench	15-000053-07	156	 Upper Left Ramp #5	15-000031-01, J102			



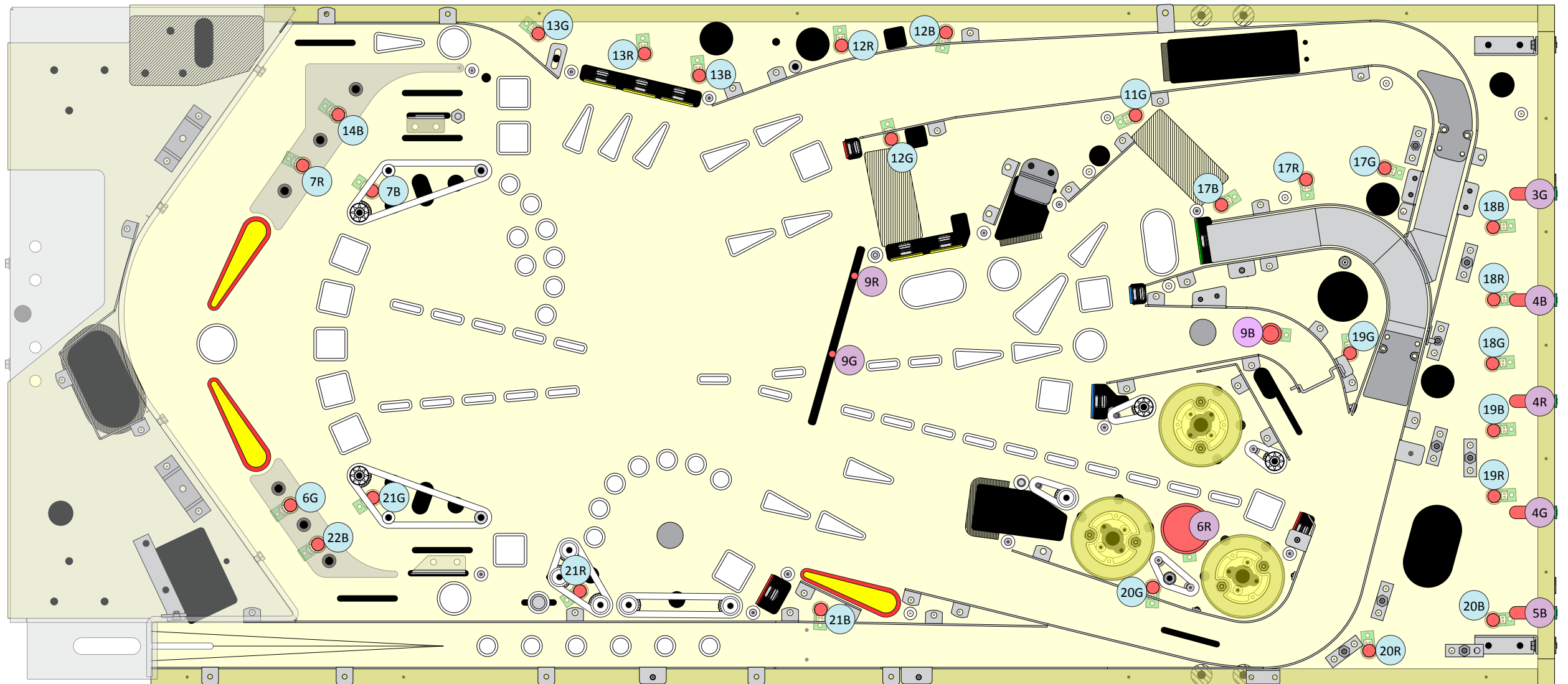


## RGB LED Feature Lighting Wiring

### *Under Playfield*



















Cable	Description	Part Number	Board Connection(s)	Details
1	DI Left Ramp, Left Side RGB LED Cable	19-009030-50	RGB LED Cont, J101	D-, D-
2	DI Upper Left Ramp/PF Sign/Left PB RGB LED Cable	19-009030-51	RGB LED Cont, J102	D-, D-
3	DI Left Ramp, Right Side/PF Sign RGB LED Cable	19-009030-52	RGB LED Cont, J103	D-, D-
4	DI Left Pop Bumper RGB LED Cable	19-009030-54	-	D-
5	DI Right Pop Bumper RGB LED Cable	19-009030-56	D6, J602	D-
6	DI Bottom Pop Bumper RGB LED Cable	19-009030-55	D6, J603	D-
7	Triple RGB LED Playfield Sign Cable	19-009030-53	-	D-
8	Beacon Flasher RGB LED Cable	19-009030-02	D2, J202	D-
9	DI Bottom Arch RGB LED Cable	19-009030-05	D4, J402	D-
10	Single RGB LED Bd Cable	19-009030-03	D8, J802	D-
11	Ethernet Cable, Cat5E, Shielded, 1ft	19-003111-01	RGB LED Cont, J104 - BAG Bd, J103	D-, D-
12	Ethernet Cable, Cat5E, Shielded, 1ft	19-003111-01	D1, J102 - D2, J201	-
13	Ethernet Cable, Cat5E, Shielded, 1ft	19-003111-01	D1, J104 - D4, J401	-
14	Ethernet Cable, Cat5E, Shielded, 1ft	19-003111-01	D1, J108 - D8, J801	-
15	Ethernet Cable, Cat5E, Shielded, 2ft	19-003111-02	D1, J103 - D3, J301	-
16	Ethernet Cable, Cat5E, Shielded, 2ft	19-003111-02	D1, J105 - D5, J501	-
17	Ethernet Cable, Cat5E, Shielded, 3ft	19-003111-03	RGB LED Cont, J105 - D1, J101	-
18	Ethernet Cable, Cat5E, Shielded, 3ft	19-003111-03	D1, J106 - D6, J601	-
19	Ethernet Cable, Cat5E, Shielded, 3ft	19-003111-03	D1, J107 - D7, J701	-
20	Ethernet Cable, Cat5E, Shielded, 3ft	19-003111-03	D1, J109 - Smartphone Bd, J101	-





















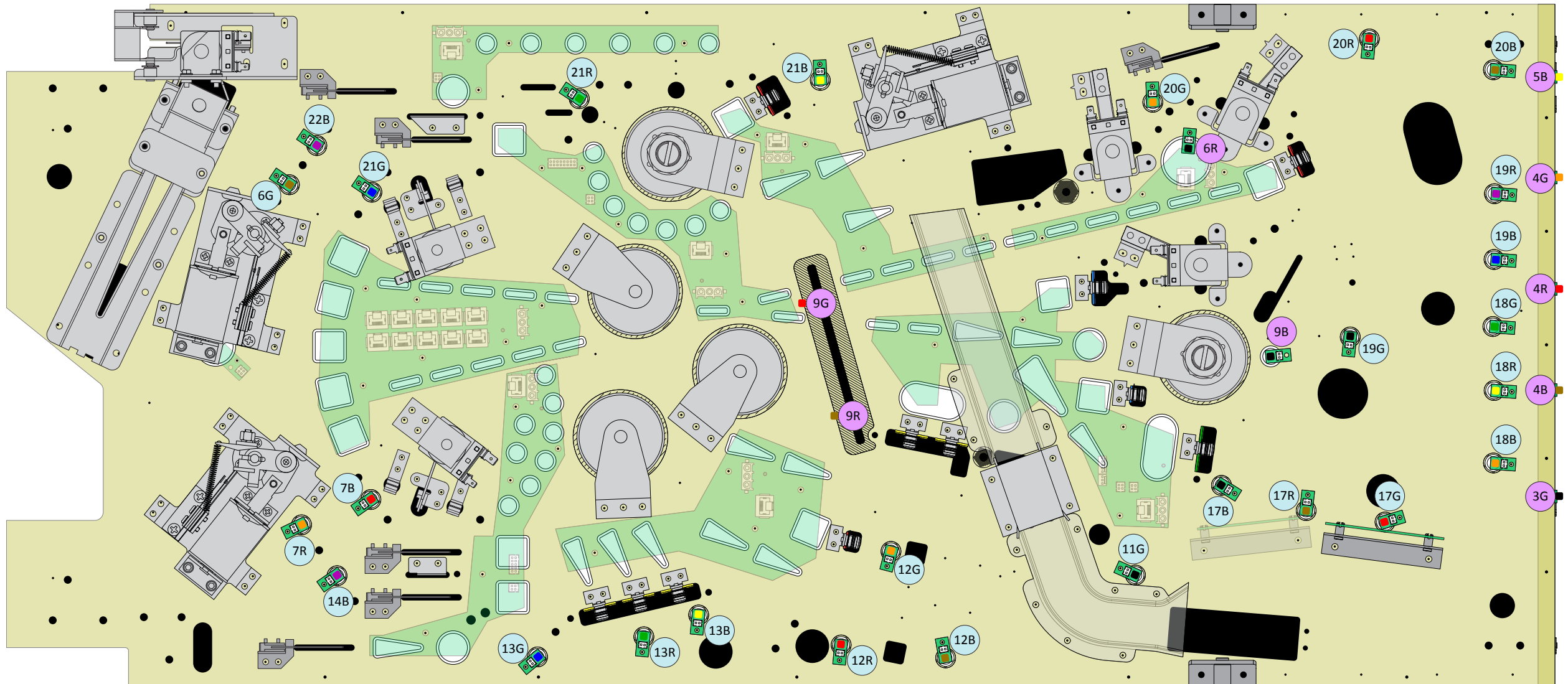


# Playfield GI Lighting & Flashers (LEDs)

## *Above Playfield*





































LED#		Location/Function	BAG Bd Connector	Details
3G		Skyline Flasher #1 (left)	J106	D-, D-
4R		Skyline Flasher #3	J106	D-, D-
4G		Skyline Flasher #4	J106	D-, D-
4B		Skyline Flasher #2	J106	D-, D-
5B		Skyline Flasher #5 (right)	J106	D-, D-
6R		Pop Bumper Flasher	J107	D-, D-
6G		Right Return #2 (lower)	J107	D-, D-
7R		Left Return #2 (lower)	J107	D-, D-
7B		Left Sling	J107	D-, D-
9R		Moving Target Flasher (left)	J108	D-, D-
9G		Moving Target Flasher (right)	J108	D-, D-
9B		Theater Flasher	J108	D-, D-
11G		Left Ramps Area #4 (lower)	J109	D-, D-
12R		Left Side #2	J109	D-, D-
12G		Spider	J109	D-, D-
12B		Left Side #1 (upper)	J109	D-, D-
13R		Left Side #4	J109	D-, D-
13G		Left Side #5 (lower)	J109	D-, D-

LED#		Location/Function	BAG Bd Connector	Details
13B		Left Side #3	J109	D-, D-
14B		Left Return #1 (upper)	J109	D-, D-
17R		Left Ramps Area #2	J111	D-, D-
17G		Left Ramps Area #1 (upper)	J111	D-, D-
17B		Left Ramps Area #3	J111	D-, D-
18R		Skyline #2	J111	D-, D-
18G		Skyline #3	J111	D-, D-
18B		Skyline #1 (left)	J111	D-, D-
19R		Skyline #5	J111	D-, D-
19G		Theater Exit	J112	D-, D-
19B		Skyline #4	J111	D-, D-
20R		Upper Right	J112	D-, D-
20G		Pop Bumpers	J112	D-, D-
20B		Skyline #6 (right)	J112	D-, D-
21R		Drone	J112	D-, D-
21G		Right Sling	J112	D-, D-
21B		Upper Flipper	J112	D-, D-
22B		Right Return #1 (upper)	J112	D-, D-

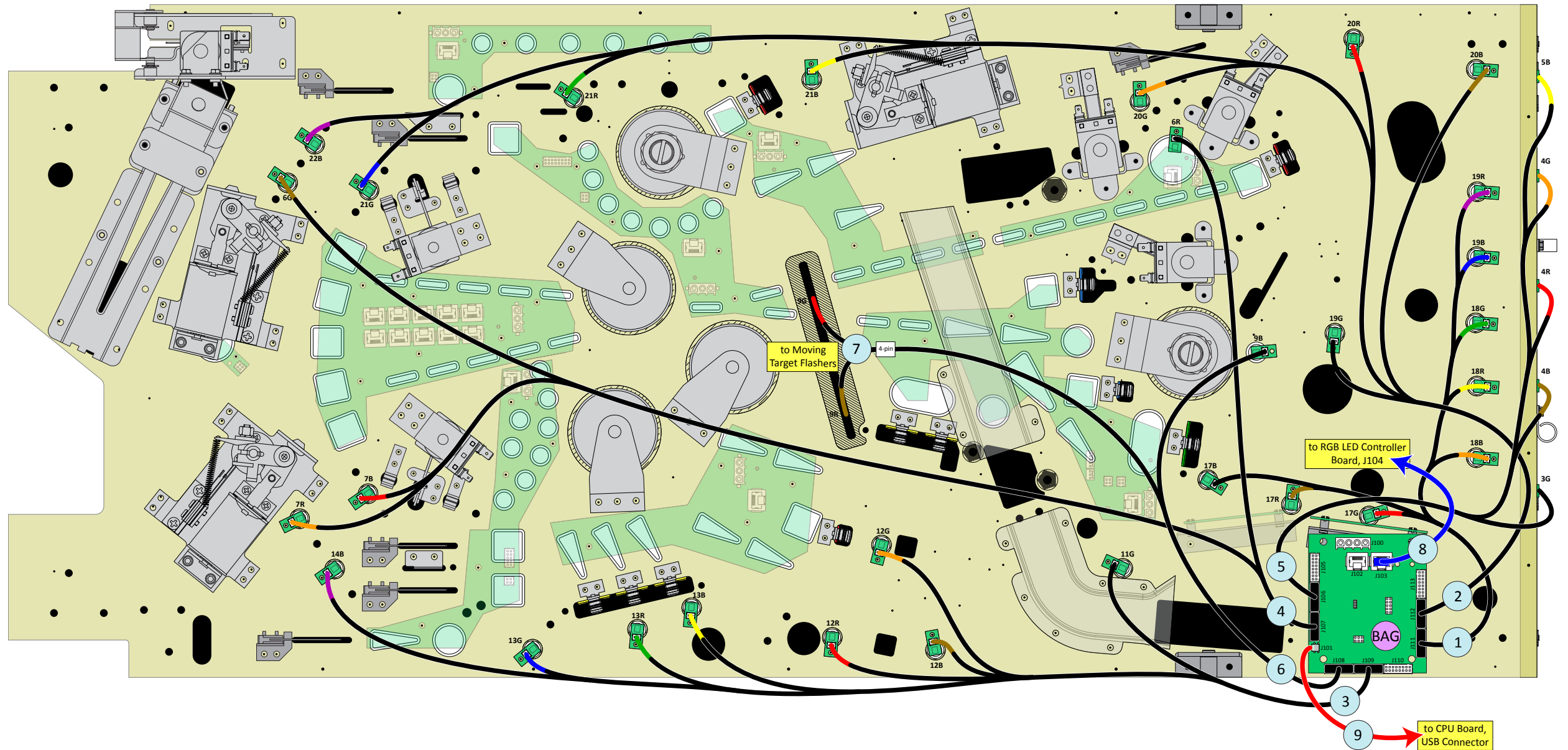


# Playfield GI Lighting & Flashers (LEDs)

*Under Playfield*

LED#		Location/Function	BAG Bd Connector	Details	LED#		Location/Function	BAG Bd Connector	Details
3G		Skyline Flasher #1 (left)	J106	D-, D-	13B		Left Side #3	J109	D-, D-
4R		Skyline Flasher #3	J106	D-, D-	14B		Left Return #1 (upper)	J109	D-, D-
4G		Skyline Flasher #4	J106	D-, D-	17R		Left Ramps Area #2	J111	D-, D-
4B		Skyline Flasher #2	J106	D-, D-	17G		Left Ramps Area #1 (upper)	J111	D-, D-
5B		Skyline Flasher #5 (right)	J106	D-, D-	17B		Left Ramps Area #3	J111	D-, D-
6R		Pop Bumper Flasher	J107	D-, D-	18R		Skyline #2	J111	D-, D-
6G		Right Return #2 (lower)	J107	D-, D-	18G		Skyline #3	J111	D-, D-
7R		Left Return #2 (lower)	J107	D-, D-	18B		Skyline #1 (left)	J111	D-, D-
7B		Left Sling	J107	D-, D-	19R		Skyline #5	J111	D-, D-
9R		Moving Target Flasher (left)	J108	D-, D-	19G		Theater Exit	J112	D-, D-
9G		Moving Target Flasher (right)	J108	D-, D-	19B		Skyline #4	J111	D-, D-
9B		Theater Flasher	J108	D-, D-	20R		Upper Right	J112	D-, D-
11G		Left Ramps Area #4 (lower)	J109	D-, D-	20G		Pop Bumpers	J112	D-, D-
12R		Left Side #2	J109	D-, D-	20B		Skyline #6 (right)	J112	D-, D-
12G		Spider	J109	D-, D-	21R		Drone	J112	D-, D-
12B		Left Side #1 (upper)	J109	D-, D-	21G		Right Sling	J112	D-, D-
13R		Left Side #4	J109	D-, D-	21B		Upper Flipper	J112	D-, D-
13G		Left Side #5 (lower)	J109	D-, D-	22B		Right Return #1 (upper)	J112	D-, D-



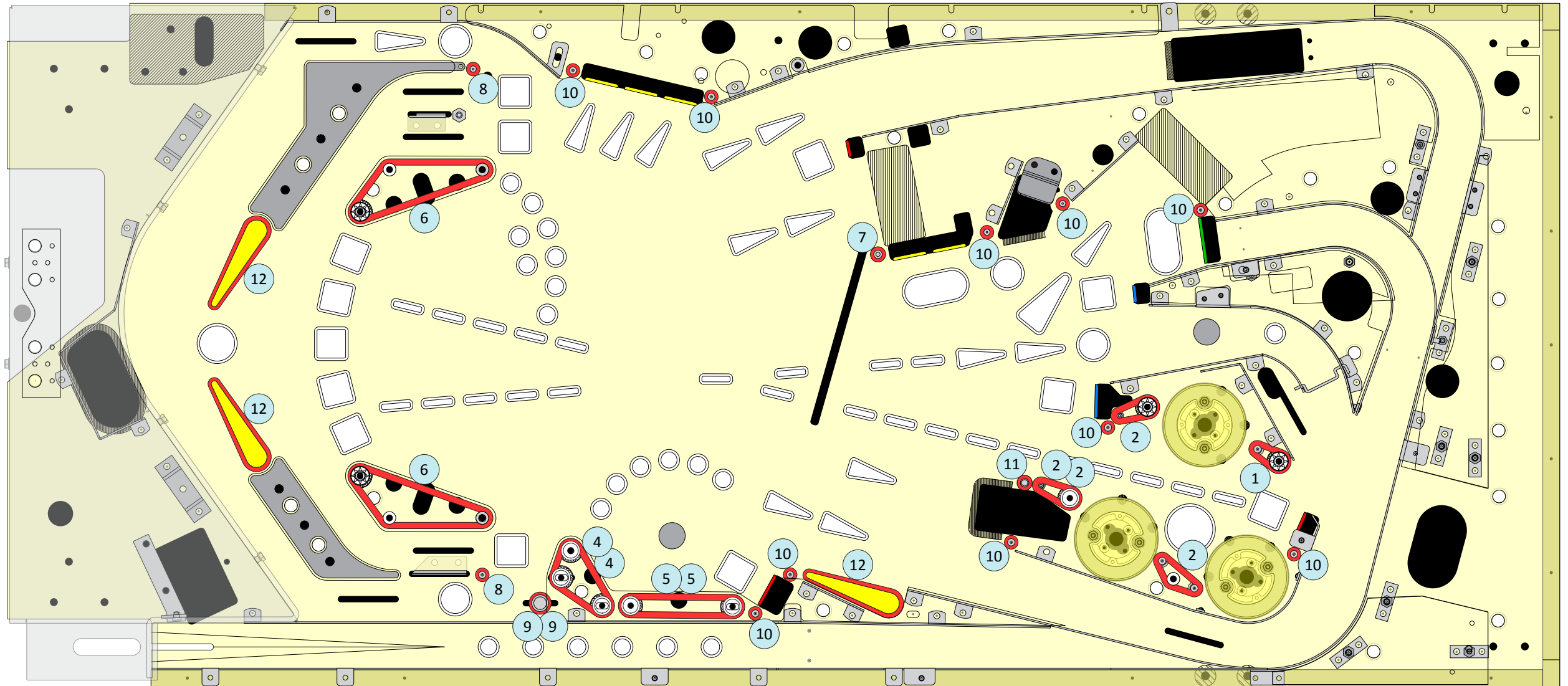


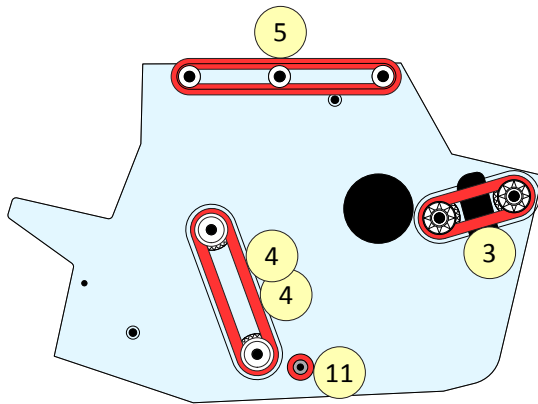


# GI Lighting & Flasher Wiring

*Under Playfield*

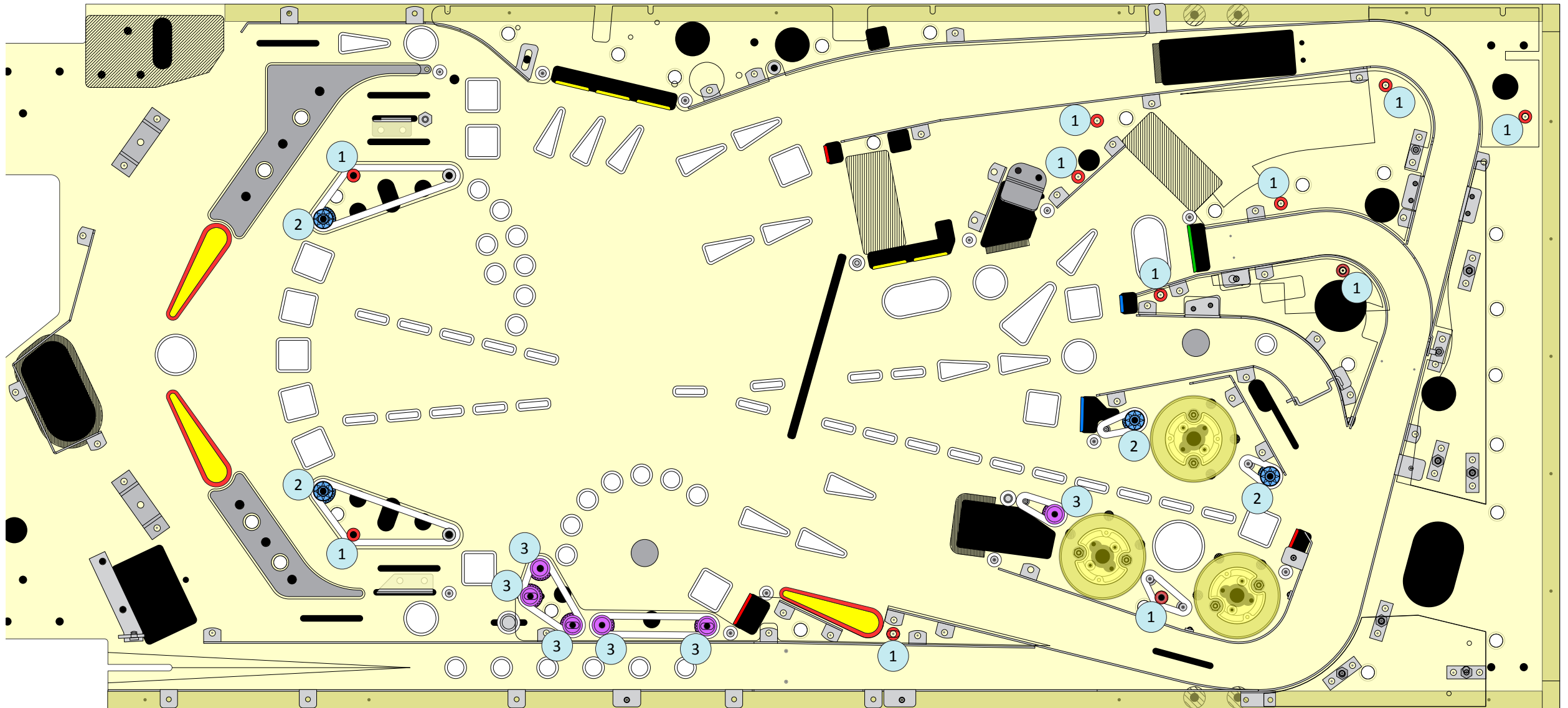
Cable	Description	Part Number	BAG Bd Connector	Details
1	DI Upper GI Cable	19-003122-01	J111	D-, D-
2	DI Right Side GI Cable	19-003122-02	J112	D-, D-
3	DI Left Side GI Cable	19-003122-03	J109	D-, D-
4	DI Lower Middle GI/Flasher Cable	19-003122-04	J107	D-, D-
5	DI Back Panel Flasher Cable	19-003122-05	J106	D-, D-
6	DI Middle Flasher Cable	19-003122-06	J108	D-, D-
7	DI Moving Target Switch & LED Cable	19-009034-00	-	-
8	Ethernet Cable, Cat5E, Shielded, 1ft	19-003111-01	J103	D-, D-
9	USB Cable, 2.0 A to Mini-B, M-M, Shielded, 2.62ft	19-003100-02	J101	D-, D-

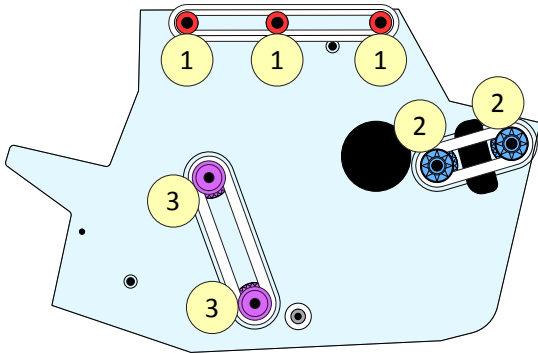




# Rubber Rings, Bumpers & Sleeves

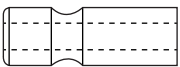
Item	Part Number	Description	Qty
1	25-002003-08-9	Rubber Ring, 1/2", White	1
2	25-002003-12-9	Rubber Ring, 3/4", White	4
3	25-002003-16-9	Rubber Ring, 1", White	1
4	25-002003-20-9	Rubber Ring, 1-1/4", White	4
5	25-002003-24-9	Rubber Ring, 1-1/2", White	3
6	25-002003-32-9	Rubber Ring, 2", White	2
7	25-006002-00	Post Rubber Sleeve, 1-1/16", Black	1
8	25-006003-03-9	3/16" ID Mini Post Rubber, White	2
9	25-006003-06-9	3/8" OD Post Rubber, White	2
10	25-006003-07-9	7/16" OD Post Rubber, White	10
11	25-006012-09	Post Polyurethane Sleeve, 1-1/16", White	2
12	25-002001-02	Flipper Rubber Ring, 1-1/2", Red	3



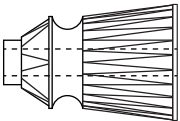


## Plastic Playfield Posts

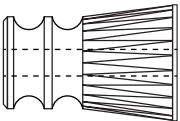
Item	Part Number	Description	Qty
1	30-009004-13	1-1/16" Standard Poly Post, Clear	14
2	30-009005-13	Single Star Poly Post, Clear	6
3	30-009008-13	Double Star Poly Post, Clear	8



1

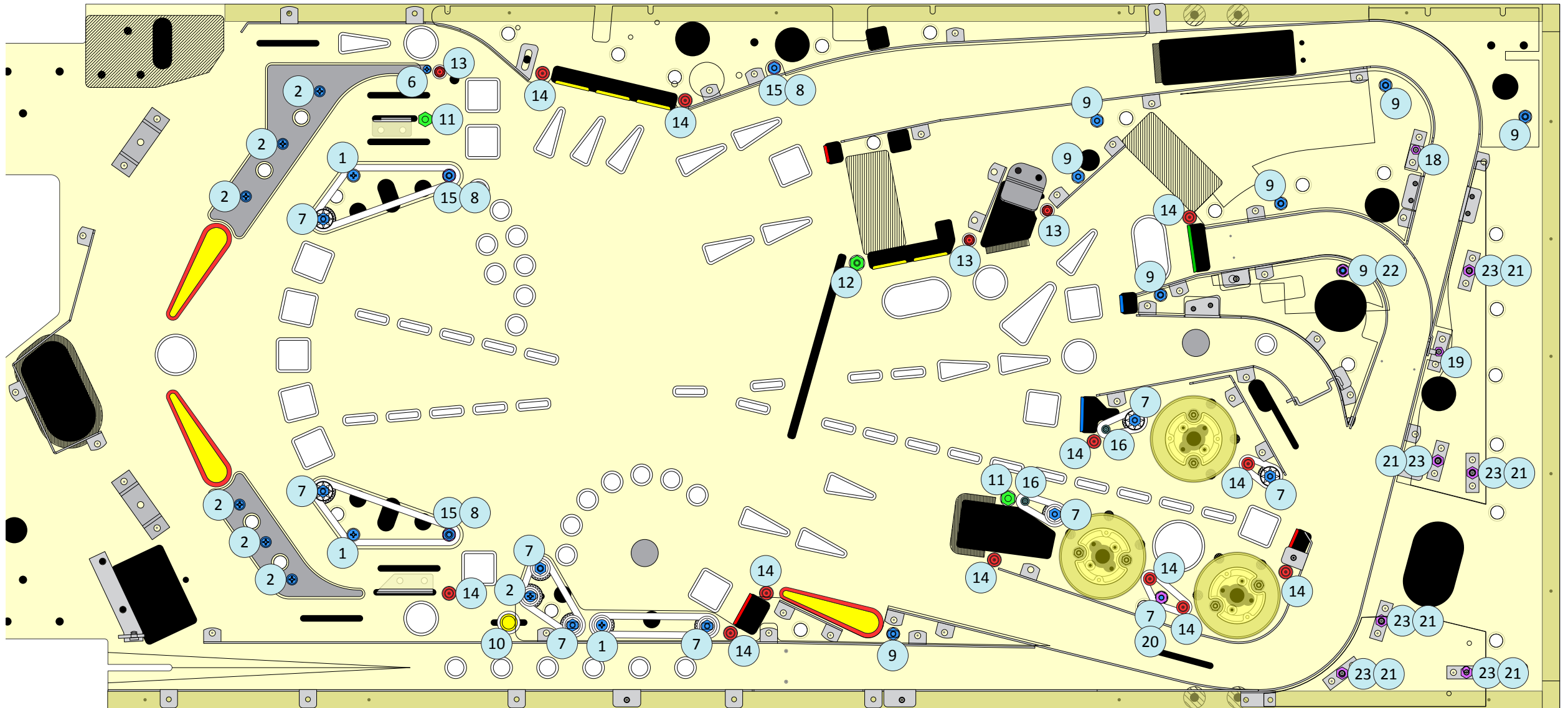


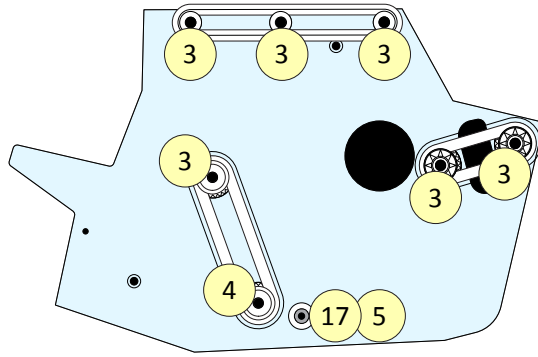
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3

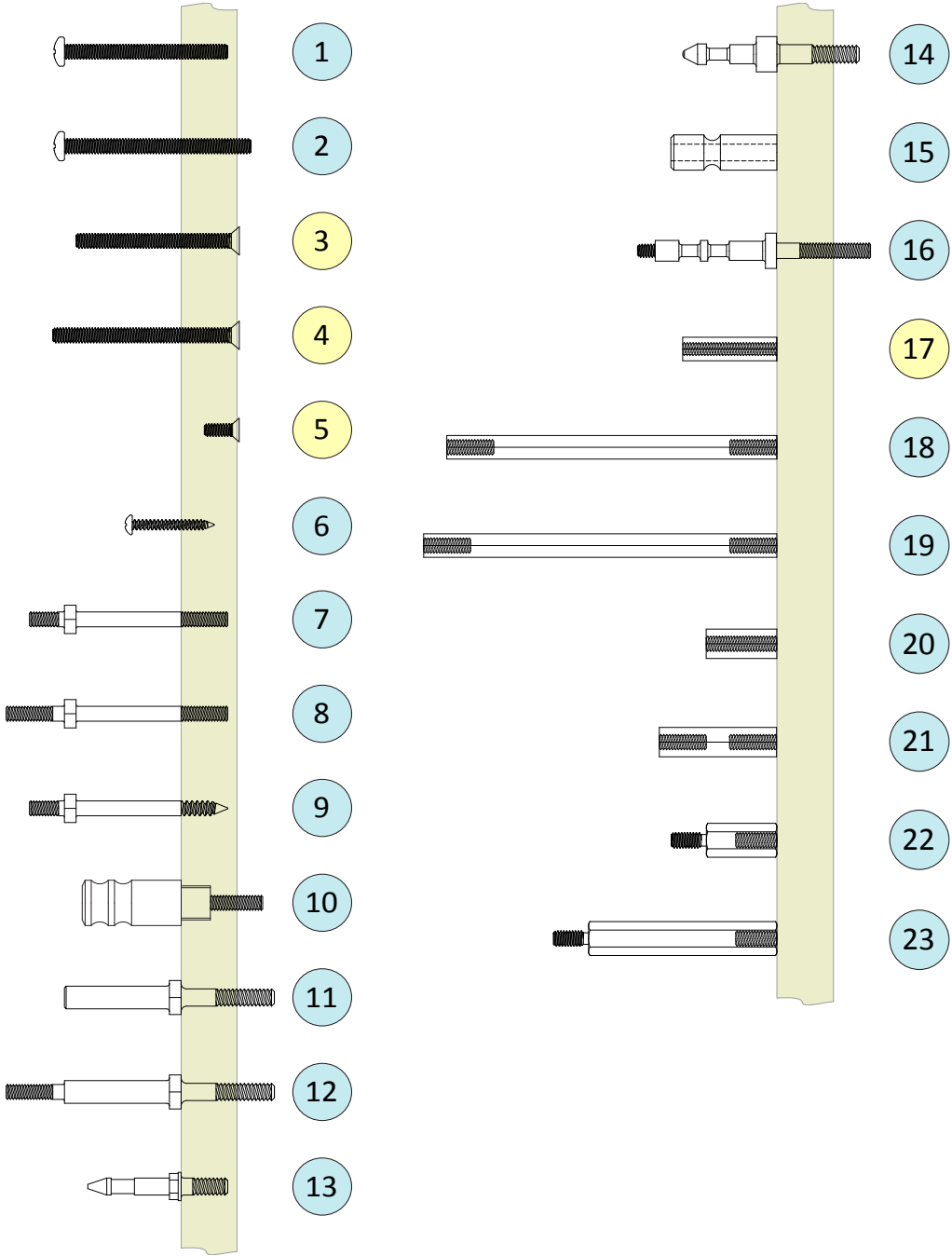


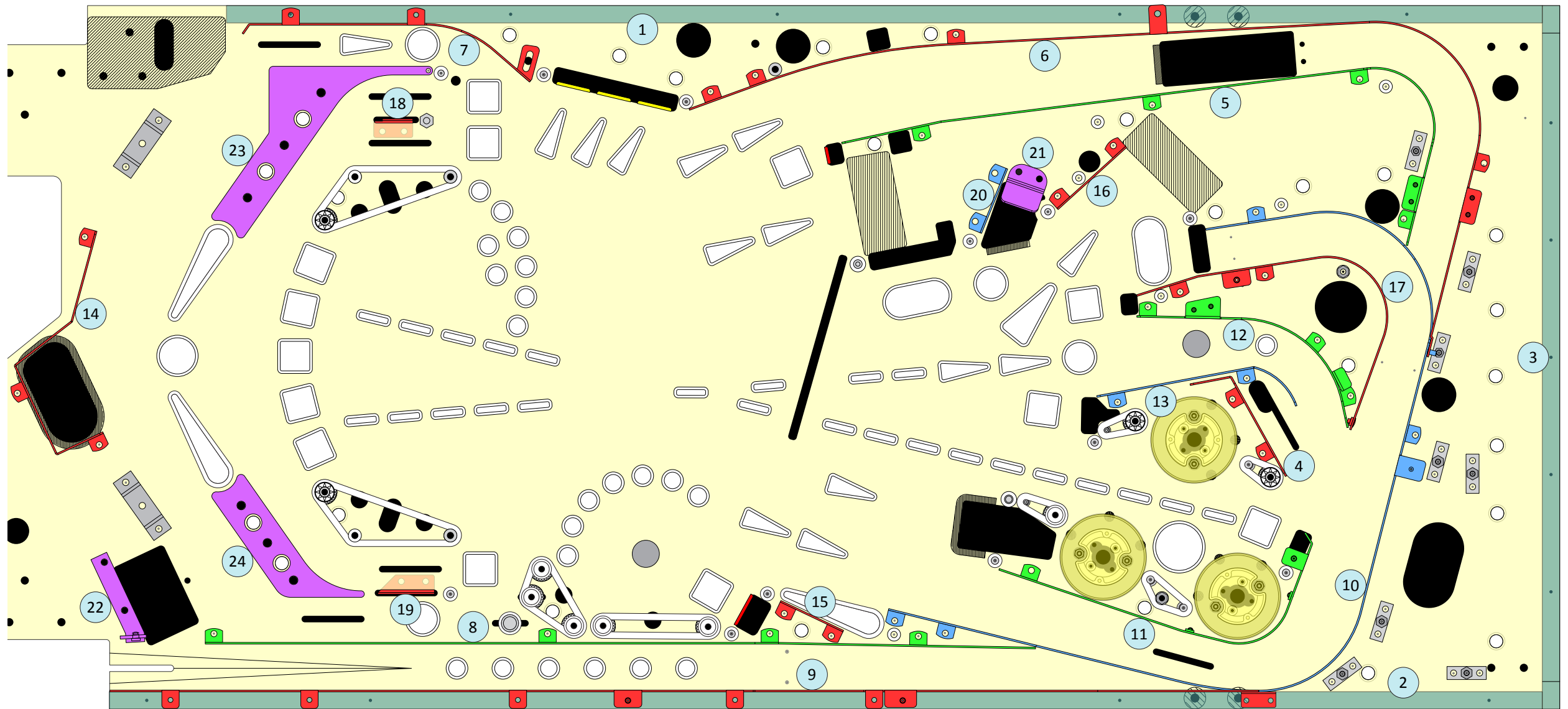




# Metal Playfield Posts, Screws & Hex Spacers

Item	Part Number	Description	Qty
1	80-000008-28	8-32 x 1-3/4" PPH MS	3
2	80-000008-32	8-32 x 2" PPH MS	7
3	80-006008-28	8-32 x 1-3/4" PFH MS, w/Undercut	6
4	80-006008-32	8-32 x 2" PFH MS, w/Undercut	1
5	80-006106-06	6-32 x 3/8" PFH MS, w/Undercut, Black	1
6	82-000004-14	#4 x 7/8" PPH SMS	1
7	97-000008-00	8-32/8-32 Butyrate Fastener Post, 2-1/8"	9
8	97-000008-01	8-32/8-32 Ramp Fastener Post, 2-3/8"	3
9	97-000008-02	8-32/WS Butyrate Fastener Post, 2-1/8"	8
10	97-000008-04	8-32 Steel Adjusting Post, Dual Rubber, 1/2" Diam	1
11	97-000009-00	5/16" Hex Sleeve Post, 2-1/4"	2
12	97-000009-02	5/16" Hex Sleeve Ramp Fastener Post, 2-7/8"	1
13	97-000010-01	Steel Mini Post, 10-32, 1-1/2"	3
14	97-000011-00	Steel Mini Post, 10-32, 1-7/8", Round Base	12
15	97-000100-01	Steel Standard Post, 1-3/16"	3
16	97-000102-00	Steel Bumper Post, Dual Rubber, 8-32/8-32	2
17	94-001406-16	1/4" x 1" Hex Spacer, F-F, 6-32, Zinc	1
18	94-000408-56	1/4" x 3-1/2" Hex Spacer, F-F, 8-32 Thread, Black	1
19	94-000408-60	1/4" x 3-3/4" Hex Spacer, F-F, 8-32 Thread, Black	1
20	95-001508-12	5/16" x 3/4" Hex Spacer, F-F, 8-32, Zinc	1
21	95-001508-20	5/16" x 1-1/4" Hex Spacer, F-F, 8-32, Zinc	6
22	95-001518-12	5/16" x 3/4" Hex Spacer, M-F, 8-32, Alum	1
23	95-001518-32	5/16" x 2" Hex Spacer, M-F, 8-32, Alum	6

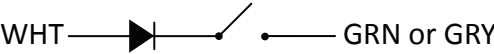




## Woodrails, Flatrails & Ball Deflectors

Item	Part Number	Description	Qty
1	05-008001-05	Playfield Woodrail w/Black Vinyl Cover, 41.25"	1
2	05-008001-06	Playfield Woodrail w/Black Vinyl Cover, 37.9"	1
3	05-009005-00	DI Back Panel Wood	1
4	12-000039-00	DI Illusion Kicker Flatrail	1
5	12-000039-01	DI Left Orbit, Inner Flatrail	1
6	12-000039-02	DI Left Orbit, Outer Flatrail	1
7	12-000039-03	DI Left Outlane Flatrail	1
8	12-000039-04	DI Inner Shooter Lane Flatrail	1
9	12-000039-05	DI Outer Shooter Lane Flatrail	1
10	12-000039-06	DI Right Orbit/Loop, Outer Flatrail	1
11	12-000039-07	DI Right Orbit/Loop, Inner Flatrail	1
12	12-000039-08	DI Left Theater Flatrail	1
13	12-000039-09	DI Right Theater Flatrail	1
14	12-000039-10	DI Ball Outhole Flatrail	1
15	12-000039-11	DI Upper Flipper Flatrail	1
16	12-000039-12	DI Upper Left Ramp Entrance Flatrail	1
17	12-000039-13	DI Wire Ramp Entrance Flatrail	1
18	12-000039-14	DI Lane Divider Flatrail, 0.88"	1
19	12-000039-15	DI Lane Divider Flatrail, 1.62"	1
20	12-000039-16	DI Scoop Feed Flatrail	1
21	10-003001-03	Snubber Brkt, Low Profile	1
22	10-000111-00	Ball Stop Brkt	1
23	10-000221-00	DI Return Lane Plate, Left	1
24	10-000221-01	DI Return Lane Plate, Right	1

Matrixed Switch Wiring Table



		Column 1		Column 2		Column 3		Column 4		Column 5		Column 6		Column 7		Column 8		Column 9		Column 10		Column 11		Column 12		Column 13		Column 14		Column 15		Column 16	
		J201-1		J201-2		J201-3		J201-4		J201-5		J201-6		J201-7		J201-9		J202-1		J202-2		J202-3		J202-4		J202-5		J202-6		J202-8		J202-9	
		GRN	BLK	GRN	BRN	GRN	RED	GRN	ORN	GRN	YEL	GRN	GRY	GRN	BLU	GRN	VIO	GRY	BLK	GRY	BRN	GRY	RED	GRY	ORN	GRY	YEL	GRY	GRN	GRY	BLU	GRY	VIO
Row 1 J200-1		1 5-Ball Trough #1 (left)		9 Moving Tgt Away (right)		17 Moving Tgt Home (left)		25 Left Slingshot, High		33 Right Slingshot, High		41  BOB Target		49 Left Pop Bumper		57 Betty Diverter Down		65		73		81		89		97		105		113		121	
WHT	BLK																																
Row 2 J200-2		2 5-Ball Trough #2		10		18 Left Orbit Enter		26 Left Slingshot, Low		34 Right Slingshot, Low		42  BOB Target		50 Right Pop Bumper		58 Theater Ticket Tgt, Left		66		74		82		90		98		106		114		122	
WHT	BRN																																
Row 3 J200-3		3 5-Ball Trough #3		11 Left Orbit Made		19 SIM Card Scoop Enter		27 Left Return Lane 2		35 Right Return Lane		43  BOB Target		51 Bottom Pop Bumper		59 Left Ramp Enter		67		75		83		91		99		107		115		123	
WHT	RED																																
Row 4 J200-4		4 5-Ball Trough #4		12 Phone Scoop Enter		20 Bob Trap Door Enter		28 Left Return Lane 1		36 Shooter Lane		44 SPECIAL Outlane, Left		52 Right Orbit Enter		60 Upper Left Ramp Enter		68		76		84		92		100		108		116		124	
WHT	ORN																																
Row 5 J200-5		5 5-Ball Trough #5 (right)		13 Theater Enter		21 Ramp Ball Lock #1 (front)		29 Bob Trap Door Open		37 SPECIAL Outlane, Right		45  Spider Target		53 Wrench Target		61		69		77		85		93		101		109		117		125	
WHT	YEL																																
Row 6 J200-6		6 5-Ball Trough Jam		14		22 Ramp Ball Lock #2		30		38 Drone Rubber, Bottom		46 Left Ramp Made		54 Theater Ticket Tgt, Right		62 Left Ramp, Middle		70		78		86		94		102		110		118		126	
WHT	GRN																																
Row 7 J200-7		7		15		23 Ramp Ball Lock #3		31 Lite Big Bang, Bottom		39 Drone Rubber, Side		47 Right Orbit Ramp Made		55 Big Bang Target		63		71		79		87		95		103		111		119		127	
WHT	BLU																																
Row 8 J200-8		8		16		24 Ramp Ball Lock #4 (back)		32 Lite Big Bang, Top		40 Drone Target		48 Moving Target Hit		56 Skill Shot Kicker		64		72		80		88		96		104		112		120		128	
WHT	VIO																																

 Opto Switches



# Dedicated Switch Wiring Table

Common	Return 1		Return 2		Return 3		Return 4		Return 5		Return 6		Return 7		Return 8	
	J601-7		J601-6		J601-5		J601-4		J601-2		J601-3		J601-8		J601-9	
	BLK	GRY	BLK	BRN	BLK	RED	BLK	ORN	BLK	YEL	BLK	GRN	BLK	BLU	BLK	VIO
J601-1	1		2		3		4		5		6		7		8	
BLK	Left Flipper EOS		Right Flipper EOS		Upper Right Flipper EOS											

Common	Return 9		Return 10		Return 11		Return 12		Return 13		Return 14		Return 15		Return 16	
	J602-7		J602-6		J602-5		J602-4		J602-2		J602-3		J602-8		J602-10	
	YEL	BLK	YEL	BRN	YEL	RED	YEL	ORN	YEL	GRY	YEL	GRN	YEL	BLU	YEL	VIO
J602-1	9		10		11		12		13		14		15		16	
BLK	Left Flipper Switch				Right Flipper Switch, Lower		Right Flipper Switch, Upper		Enter/Menu Button		Up/Volume+ Button		Down/Volume- Button		Escape/Service Credit Button	

Common	Return 17		Return 18		Return 19		Return 20		Return 21		Return 22		Return 23		Return 24	
	J603-7		J603-6		J603-5		J603-4		J603-2		J603-3		J603-9		J603-10	
	BLU	BLK	BLU	BRN	BLU	RED	BLU	ORN	BLU	YEL	BLU	GRN	BLU	GRY	BLU	VIO
J603-1	17		18		19		20		21		22		23		24	
BLK	Left Coin Switch		Right Coin Switch		Center Dollar Bill Acceptor		4th Coin Slot Switch		5th Coin Slot Switch		Ticket Mech Notch Switch					

Common	Return 25		Return 26		Return 27		Return 28		Return 29		Return 30		Return 31		Return 32	
	J604-8		J604-6		J604-5		J604-4		J604-2		J604-3		J604-9		J604 -10	
	VIO	BLK	VIO	BRN	VIO	RED	VIO	ORN	VIO	YEL	VIO	GRN	VIO	BLU	VIO	GRY
J604-1	25		26		27		28		29		30		31		32	
BLK	Start Button		Coin Door Open		Plumb Bob Tilt						Headphone Panel Volume Down		Headphone Panel Volume Up		Headphone Panel Jack Sense	

## 70-Volt Coil Wiring Table

70V Power	Drive 1		Drive 2		Drive 3		Drive 4		Drive 5		Drive 6		Drive 7		Drive 8	
	J104-9, Q308		J104-8, Q307		J104-7, Q306		J104-6, Q305		J104-5, Q304		J104-4, Q303		J104-3, Q302		J104-2, Q301	
	BRN	BLK	BRN	GRY	BRN	RED	BRN	ORN	BRN	YEL	BRN	GRN	BRN	BLU	BRN	VIO
J104-1	Left Pop Bumper		Right Pop Bumper		Bottom Pop Bumper		Theater Magnet		Skill Shot Kicker		Phone Scoop Eject		Knocker			
BRN																

[illegible]

70V Power	Drive 17		Drive 18		Drive 19		Drive 20		Drive 21		Drive 22		Drive 23		Drive 24	
	J106-10, Q328		J106-9, Q327		J106-7, Q326		J106-6, Q325		J106-5, Q324		J106-4, Q323		J106-3, Q322		J106-2, Q321	
	ORN	BLK	ORN	BRN	ORN	RED	ORN	GRY	ORN	YEL	ORN	GRN	ORN	BLU	ORN	VIO
J106-1	Drone Magnet				Kickback				Auto-Launch		5-Ball Trough VUK					
ORN																

70V Power	Drive 25		Drive 26		Drive 27		Drive 28		Drive 29		Drive 30		Drive 31		Drive 32	
	J107-10, Q338		J107-9, Q337		J107-8, Q336		J107-6, Q335		J107-5, Q334		J107-4, Q333		J107-3, Q332		J107-2, Q331	
	TAN	BLK	TAN	BRN	TAN	RED	TAN	ORN	TAN	YEL	TAN	GRN	TAN	BLU	TAN	VIO
J107-1			Upper Magnet		Right Magnet		Left Magnet									
TAN																

70V Power	Drive 33		Drive 34		Drive 35		Drive 36		Drive 37		Drive 38		Drive 39		Drive 40	
	J108-10, Q408		J108-9, Q407		J108-8, Q406		J108-7, Q405		J108-5, Q404		J108-4, Q403		J108-3, Q402		J108-2, Q401	
	PNK	BLK	PNK	BRN	PNK	RED	PNK	ORN	PNK	YEL	PNK	GRN	PNK	BLU	PNK	VIO
J108-1					Bob Trap Door Latch Release		Bob Trap Door Open									
PNK																

# 20-Volt Coil Wiring Table

20V Power	Drive 49		Drive 50		Drive 51		Drive 52		Drive 53		Drive 54		Drive 55		Drive 56	
	<b>J110-2, Q421</b>		<b>J110-3, Q422</b>		<b>J110-5, Q423</b>		<b>J110-6, Q424</b>		<b>J110-7, Q425</b>		<b>J110-8, Q426</b>		<b>J110-9, Q427</b>		<b>J110-10, Q428</b>	
	PLM	BLK	PLM	BRN	PLM	RED	PLM	ORN	PLM	YEL	PLM	GRN	PLM	BLU	PLM	GRY
<b>J110-1</b>																
PLM																

20V Power	Drive 57		Drive 58		Drive 59		Drive 60		Drive 61		Drive 62		Drive 63		Drive 64	
	<b>J111-2, Q431</b>		<b>J111-4, Q432</b>		<b>J111-5, Q433</b>		<b>J111-6, Q434</b>		<b>J111-7, Q435</b>		<b>J111-8, Q436</b>		<b>J111-9, Q437</b>		<b>J111-10, Q438</b>	
	BLU	BLK	BLU	BRN	BLU	RED	BLU	ORN	BLU	YEL	BLU	GRN	BLU	GRY	BLU	VIO
<b>J111-1</b>	Ramp Ball Lock Release		Left Slingshot		Right Slingshot											
BLU																

20V Power	Drive 65		Drive 66		Drive 67		Drive 68		Drive 69		Drive 70		Drive 71		Drive 72	
	<b>J112-3, Q501</b>		<b>J112-4, Q502</b>		<b>J112-5, Q503</b>		<b>J112-6, Q504</b>		<b>J112-7, Q505</b>		<b>J112-8, Q506</b>		<b>J112-9, Q507</b>		<b>J112-10, Q508</b>	
	VIO	BLK	VIO	BRN	VIO	RED	VIO	ORN	VIO	YEL	VIO	GRN	VIO	BLU	VIO	GRY
<b>J112-1</b>																
VIO																

# 12-Volt Motor & Light Wiring Table

12V Power	Drive 41		Drive 42		Drive 43		Drive 44		Drive 45		Drive 46		Drive 47		Drive 48	
	<b>J109-2, Q411</b>		<b>J109-3, Q412</b>		<b>J109-4, Q413</b>		<b>J109-6, Q414</b>		<b>J109-7, Q415</b>		<b>J109-8, Q416</b>		<b>J109-9, Q417</b>		<b>J109-10, Q418</b>	
	YEL	BLK	YEL	BRN	YEL	RED	YEL	ORN	YEL	GRY	YEL	GRN	YEL	BLU	YEL	VIO
<b>J109-1</b>	Moving Target Motor		Moving Target Relay				Betty Spotlight		Betty Diverter Motor		Top Drone Motor		Center Drone Motor		Bottom Drone Motor	
YEL																

12V Power	Drive 73		Drive 74		Drive 75		Drive 76		Drive 77		Drive 78		Drive 79		Drive 80	
	<b>J113-3, Q511</b>		<b>J113-4, Q512</b>		<b>J113-5, Q513</b>		<b>J113-6, Q514</b>		<b>J113-7, Q515</b>		<b>J113-8, Q516</b>		<b>J113-9, Q517</b>		<b>J113-10, Q518</b>	
	LT BLU	BLK	LT BLU	BRN	LT BLU	RED	LT BLU	ORN	LT BLU	YEL	LT BLU	GRN	LT BLU	GRY	LT BLU	VIO
<b>J113-2</b>	Shaker Motor				Redemption Ticket Motor								Start Button Light		Flash Bulb Topper	
LT BLU																





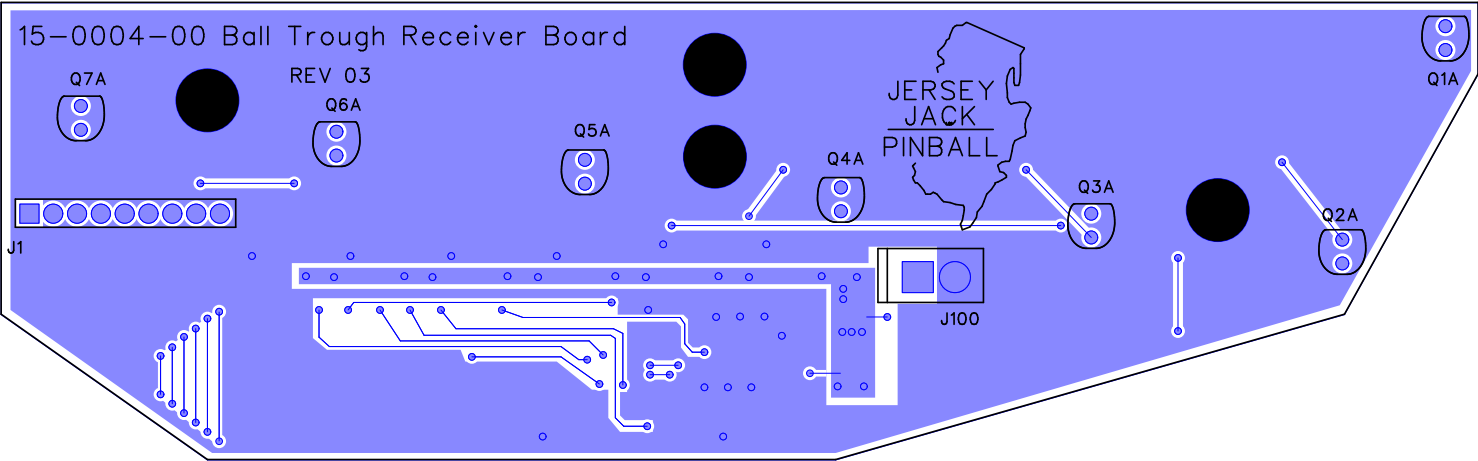
# Section D

## Reference Diagrams & Schematics

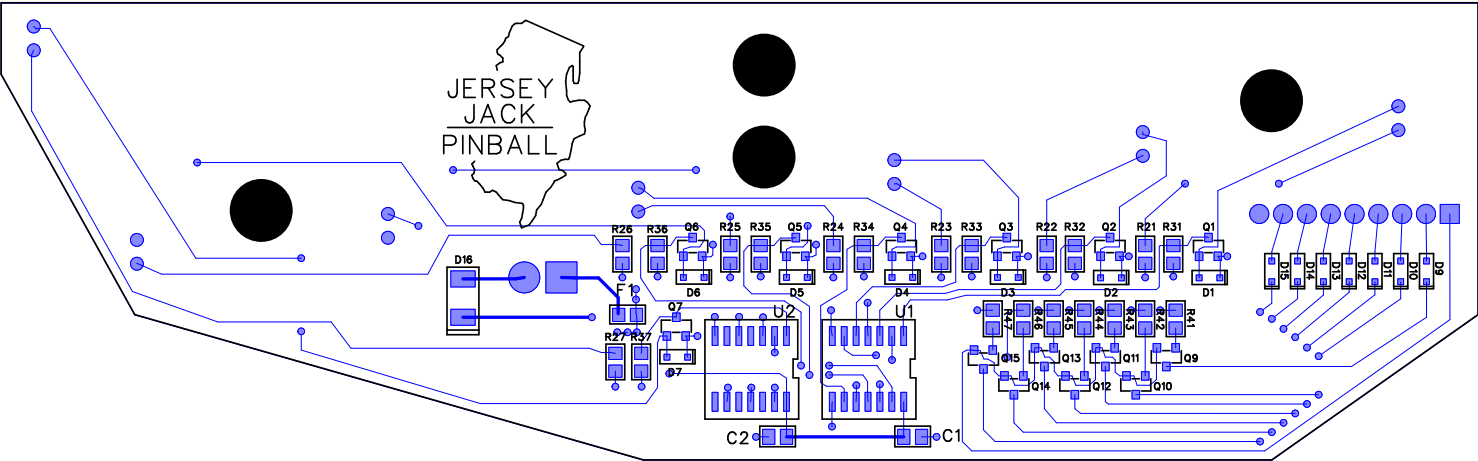
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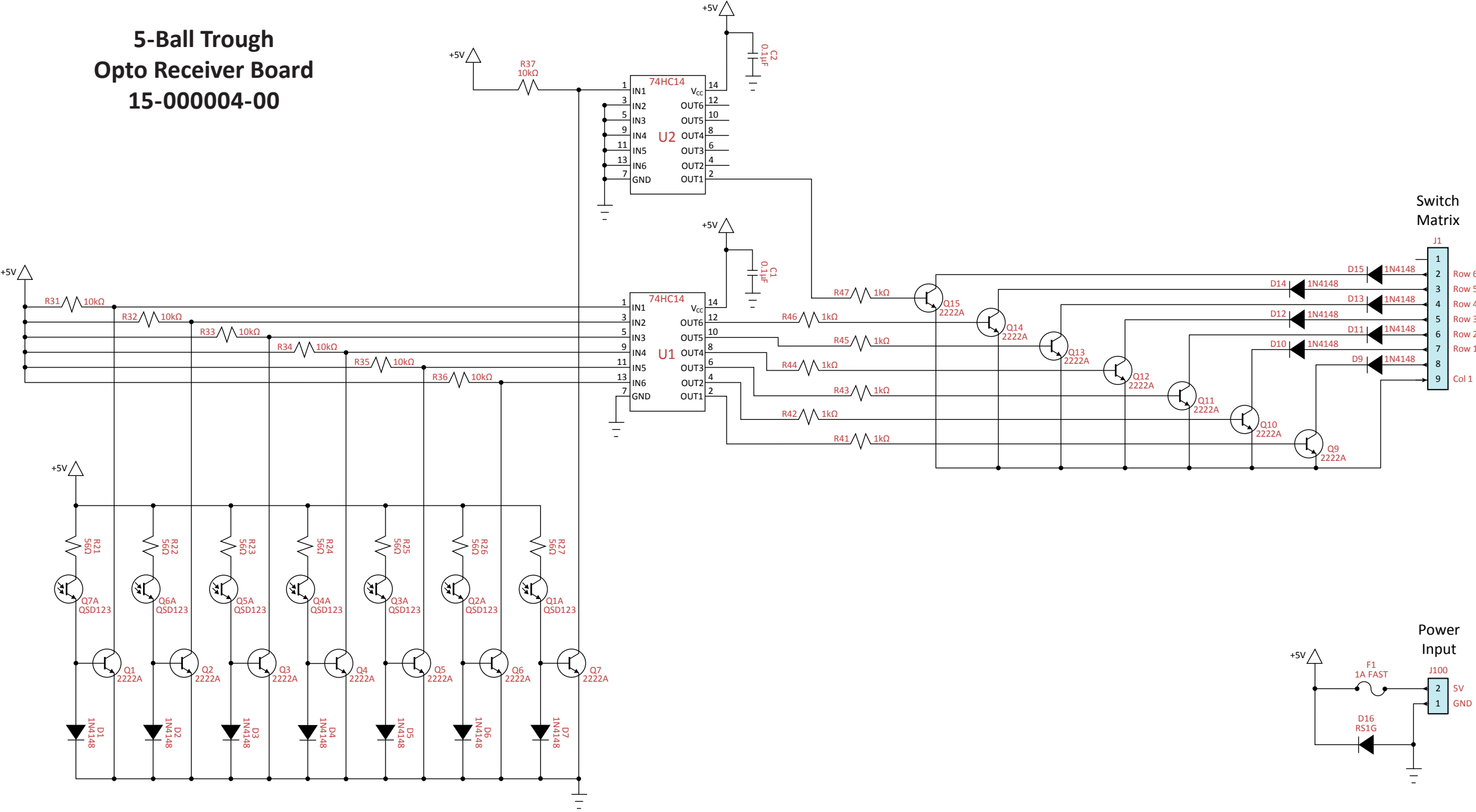


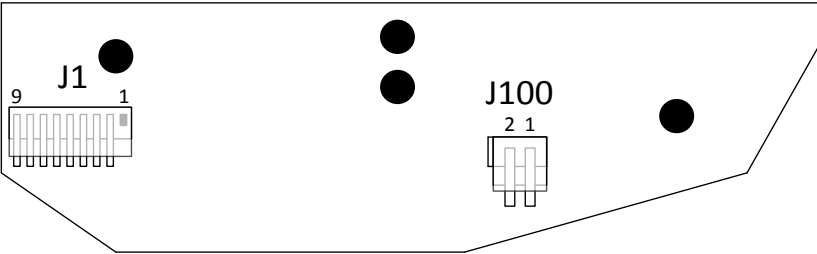
5-Ball Trough Opto Receiver Board  
15-000004-00



Component(s)	Part Number	Description
C1, C2	100-104K-050	Capacitor, MLCC, 0805 SMT, 0.1μF, 50V, 10%
D1-D7, D9-D15	110-1000-0S	Diode, 1N4148, SMT, 75V, 300mA
D16	110-5001-0S	Diode, RS1G, SMT, 400V, 1A, 150ns
F1	170-3201-FS	Fuse, Fast, 0805 SMT, 1A, 32V
Q1-Q7, Q9-Q15	131-0000-0S	Transistor, 2222A, SOT-23 SMT, NPN
Q1A-Q7A	24-0003-0T	Phototransistor, IR, QSD123, 880nm, 5mm
R21-R27	120-0056-254	Resistor, 0805 SMT, 56Ω, 0.25W, 5%
R31-R37	120-10K0-254	Resistor, 0805 SMT, 10kΩ, 0.25W, 5%
R41-R47	120-1K00-254	Resistor, 0805 SMT, 1kΩ, 0.25W, 5%
U1, U2	141-0000-0S	Hex Inverters, Schmitt Trigger, 74HC14, SOT-108 SMT
J100	31-2500-02	Header, Male, 2-pin, Rt Angle, 3.96mm
J1	31-2501-09	Header, Male, 9-pin, Rt Angle, 2.54mm

5-Ball Trough  
Opto Receiver Board  
15-000004-00





**5-Ball Trough Opto Receiver Board**  
**15-000004-00**  
**Connector Pin-outs**

**J1 Matrixed Switches**

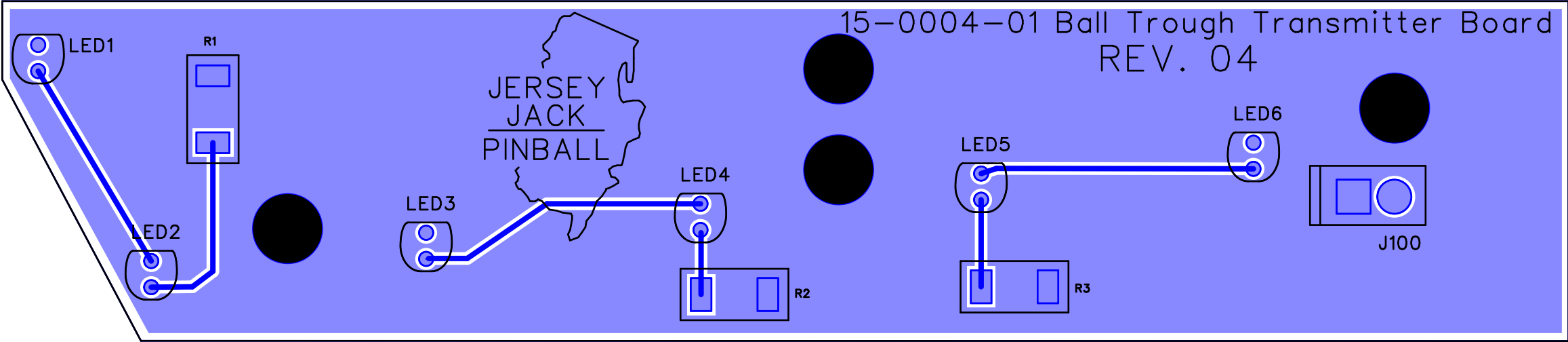
J1-1	GRN-BLK	Matrixed switches, Column 1 from I/O Board, J201-1
J1-2	Not Used	
J1-3	WHT-BLK	Matrixed switches, Row 1 from I/O Board, J200-1
J1-4	WHT-BRN	Matrixed switches, Row 2 from I/O Board J200-2
J1-5	WHT-RED	Matrixed switches, Row 3 from I/O Board J200-3
J1-6	WHT-ORN	Matrixed switches, Row 4 from I/O Board J200-4
J1-7	WHT-YEL	Matrixed switches, Row 5 from I/O Board J200-5
J1-8	WHT-GRN	Matrixed switches, Row 6 from I/O Board J200-6
J1-9	Key	

**J100 Power Input**

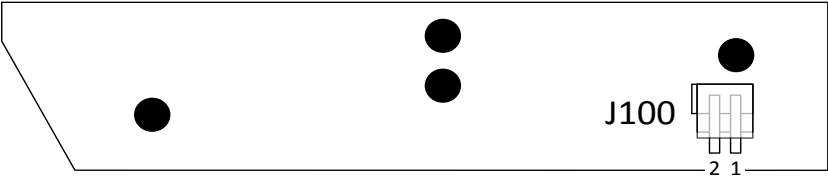
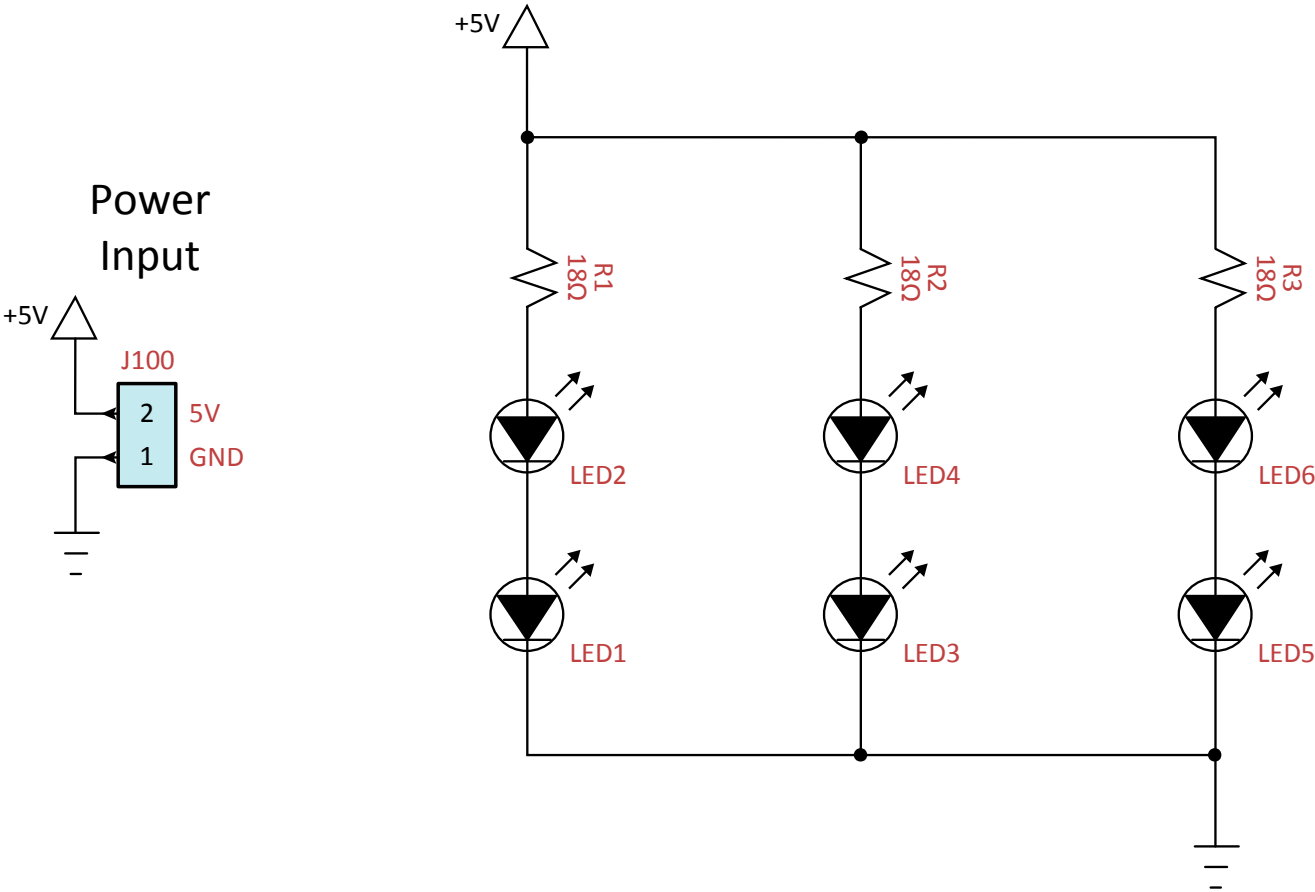
J100-1	RED	+5VDC from Primary ATX Pwr Supply
J100-2	BLK	Ground from Primary ATX Pwr Supply

5-Ball Trough Opto Transmitter Board  
15-000004-01

Component(s)	Part Number	Description
LED1-LED6	24-0002-0T	LED, IR Emitting, QED123, 880nm, 5mm
R1-R3	123-0018-1H4	Resistor, 2512 SMT, 18Ω, 1W, 5%
J100	31-2500-02	Header, Male, 2-pin, Rt Angle, 3.96mm



5-Ball Trough  
Opto Transmitter Board  
15-000004-01

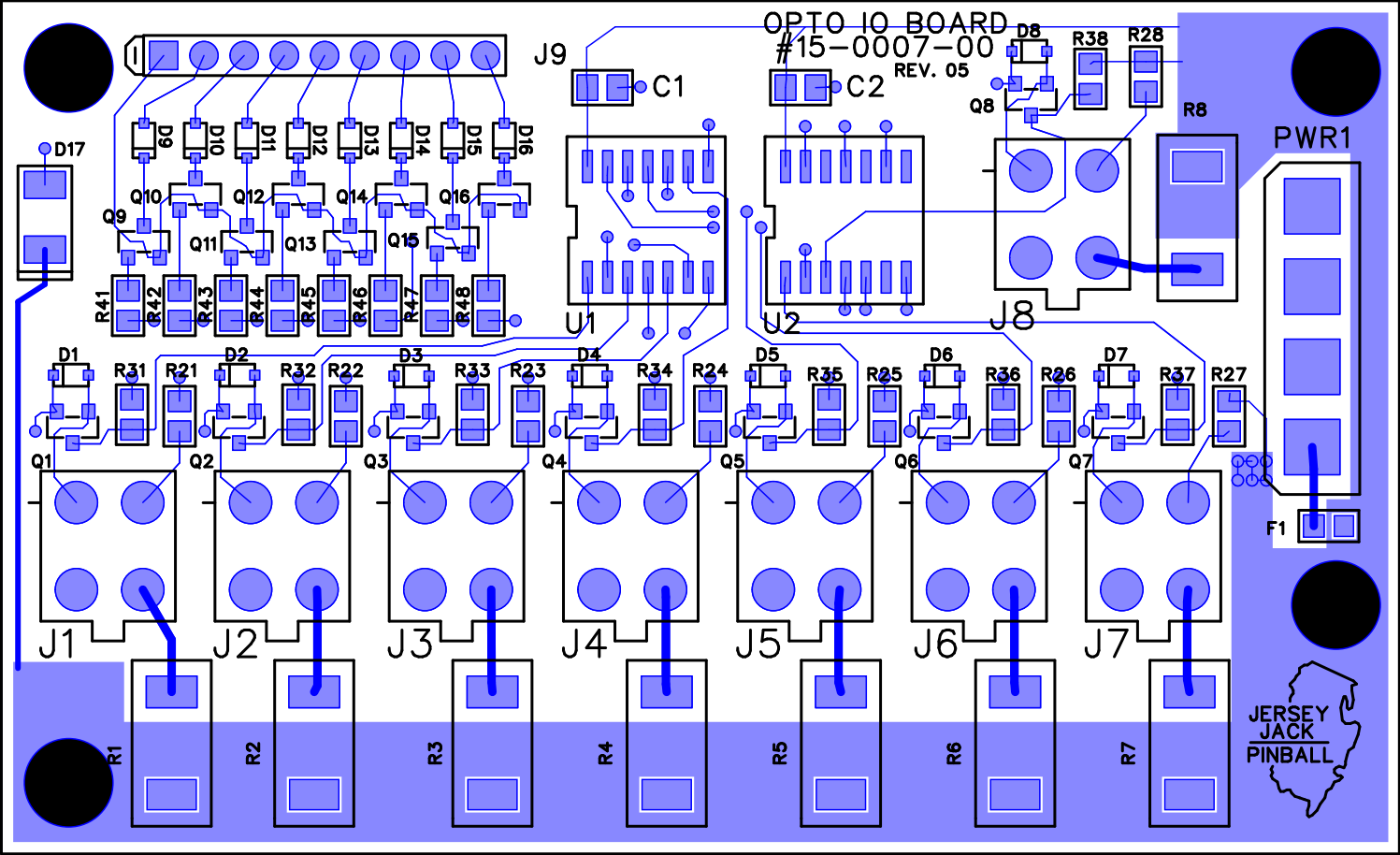


5-Ball Trough Opto Transmitter Board  
15-000004-01  
Connector Pin-outs, *Revision 4*

**J100 Power Input**

J100-1	RED	+5VDC from Primary ATX Pwr Supply
J100-2	BLK	Ground from Primary ATX Pwr Supply

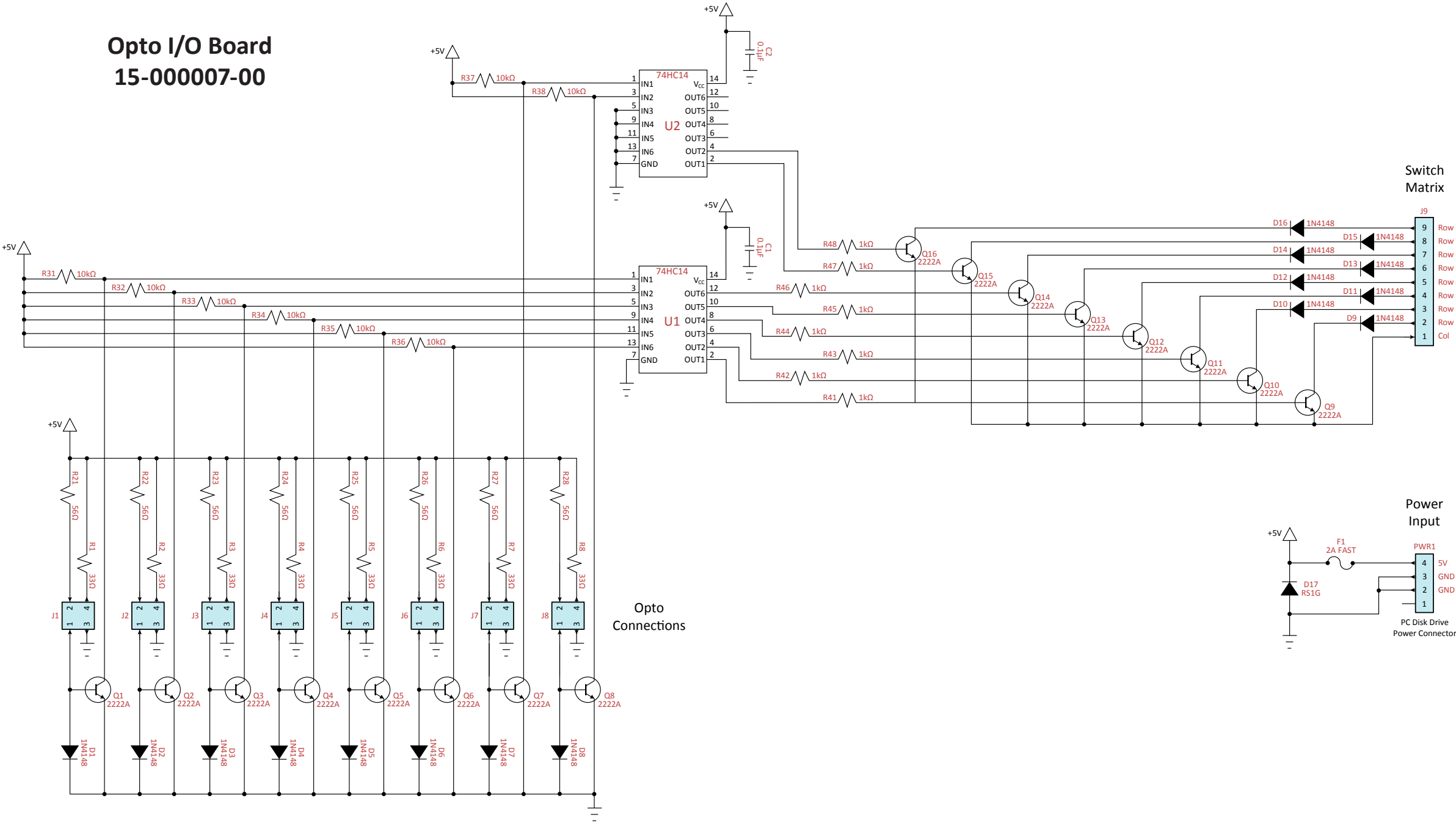


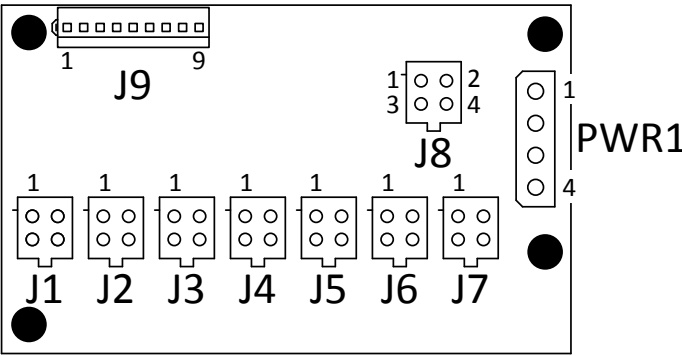


Opto I/O Board  
15-000007-00

Component(s)	Part Number	Description
C1, C2	100-104K-050	Capacitor, MLCC, 0805 SMT, 0.1μF, 50V, 10%
D1-D16	110-1000-0S	Diode, 1N4148, SMT, 75V, 300mA
D17	110-5001-0S	Diode, RS1G, SMT, 400V, 1A, 150ns
F1	170-3202-FS	Fuse, Fast, 0805 SMT, 2A, 32V
Q1-Q16	131-0000-0S	Transistor, 2222A, SOT-23 SMT, NPN
R1-R8	123-0033-2HX	Resistor, 2512 SMT, 33Ω, 2W, 5%
R21-R28	120-0056-254	Resistor, 0805 SMT, 56Ω, 0.25W, 5%
R31-R38	120-10K0-334	Resistor, 0805 SMT, 10kΩ, 0.33W, 5%
R41-R48	120-1K00-334	Resistor, 0805 SMT, 1kΩ, 0.33W, 5%
U1, U2	141-0000-0S	Hex Inverters, Schmitt Trigger, 74HC14, SOT-108 SMT
PWR1	31-2502-04	Connector Header, Male, 4-pin, Power
J1-J8	31-2503-04	Connector Header, Male, 4-pin, 2 Rows, 4.2mm
J9	31-2504-09	Header, Male, 9-pin, 2.54mm





Opto I/O Board  
15-000007-00









Left Opto I/O Board, 15-000007-00  
Connector Pin-outs





**J1 Matrixed Sw 17 [Moving Target Home (left) U-shaped Opto]**

J1-1		GRN	RX of Moving Target Home U-shaped opto
J1-2		WHT	RX of Moving Target Home U-shaped opto
J1-3		BLK	TX of Moving Target Home U-shaped opto
J1-4		RED	TX of Moving Target Home U-shaped opto





**J2 Matrixed Sw 18 [Left Orbit Enter Opto Pair]**

J2-1		GRN	RX of Left Orbit Enter opto pair ("E" lead)
J2-2		WHT	RX of Left Orbit Enter opto pair ("C" lead)
J2-3		BLK	TX of Left Orbit Enter opto pair ("K" lead)
J2-4		RED	TX of Left Orbit Enter opto pair ("A" lead)





**J3 Matrixed Sw 19 [SIM Card Scoop Enter Opto Pair]**

J3-1		GRN	RX of SIM Card Scoop Enter opto pair ("E" lead)
J3-2		WHT	RX of SIM Card Scoop Enter opto pair ("C" lead)
J3-3		BLK	TX of SIM Card Scoop Enter opto pair ("K" lead)
J3-4		RED	TX of SIM Card Scoop Enter opto pair ("A" lead)





**J4 Matrixed Sw 20 [Bob Trap Door Enter Opto Pair]**

J4-1		GRN	RX of Bob Trap Door Enter opto pair ("E" lead)
J4-2		WHT	RX of Bob Trap Door Enter opto pair ("C" lead)
J4-3		BLK	TX of Bob Trap Door Enter opto pair ("K" lead)
J4-4		RED	TX of Bob Trap Door Enter opto pair ("A" lead)





**J5 Matrixed Sw 21 [Ramp Ball Lock #1 (front) Opto Pair]**

J5-1		GRN	RX of Ramp Ball Lock #1 opto pair ("E" lead)
J5-2		WHT	RX of Ramp Ball Lock #1 opto pair ("C" lead)
J5-3		BLK	TX of Ramp Ball Lock #1 opto pair ("K" lead)
J5-4		RED	TX of Ramp Ball Lock #1 opto pair ("A" lead)





**J6 Matrixed Sw 22 [Ramp Ball Lock #2 Opto Pair]**

J6-1		GRN	RX of Ramp Ball Lock #2 opto pair ("E" lead)
J6-2		WHT	RX of Ramp Ball Lock #2 opto pair ("C" lead)
J6-3		BLK	TX of Ramp Ball Lock #2 opto pair ("K" lead)
J6-4		RED	TX of Ramp Ball Lock #2 opto pair ("A" lead)

**J7 Matrixed Sw 23 [Ramp Ball Lock #3 Opto Pair]**

J7-1		GRN	RX of Ramp Ball Lock #3 opto pair ("E" lead)
J7-2		WHT	RX of Ramp Ball Lock #3 opto pair ("C" lead)
J7-3		BLK	TX of Ramp Ball Lock #3 opto pair ("K" lead)
J7-4		RED	TX of Ramp Ball Lock #3 opto pair ("A" lead)

**J8 Matrixed Sw 24 [Ramp Ball Lock #4 (back) Opto Pair]**

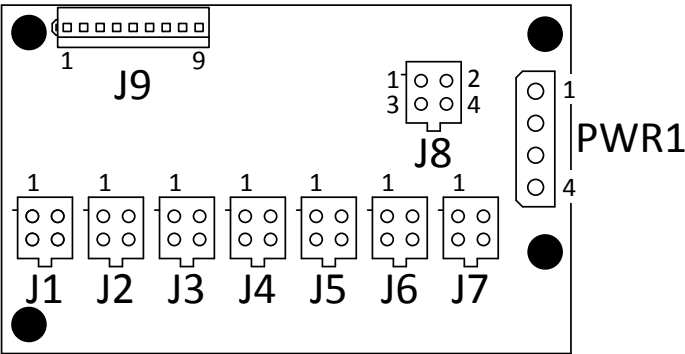
J8-1		GRN	RX of Ramp Ball Lock #4 opto pair ("E" lead)
J8-2		WHT	RX of Ramp Ball Lock #4 opto pair ("C" lead)
J8-3		BLK	TX of Ramp Ball Lock #4 opto pair ("K" lead)
J8-4		RED	TX of Ramp Ball Lock #4 opto pair ("A" lead)

**J9 Matrixed Switches**

J9-1	GRN-RED	Matrixed switches, Column 3 from I/O Board, J201-3
J9-2	WHT-BLK	Matrixed switches, Row 1 from I/O Board, J200-1
J9-3	WHT-BRN	Matrixed switches, Row 2 from I/O Board, J200-2
J9-4	WHT-RED	Matrixed switches, Row 3 from I/O Board, J200-3
J9-5	WHT-ORN	Matrixed switches, Row 4 from I/O Board, J200-4
J9-6	WHT-YEL	Matrixed switches, Row 5 from I/O Board, J200-5
J9-7	WHT-GRN	Matrixed switches, Row 6 from I/O Board, J200-6
J9-8	WHT-BLU	Matrixed switches, Row 7 from I/O Board, J200-7
J9-9	WHT-VIO	Matrixed switches, Row 8 from I/O Board, J200-8

**PWR1 Power Input**

PWR1-1	RED	+5VDC from Primary ATX Pwr Supply
PWR1-2	BLK	Ground from Primary ATX Pwr Supply
PWR1-3	Not Used	
PWR1-4	Not Used	



Right Opto I/O Board, 15-000007-00  
Connector Pin-outs

**J1 Matrixed Sw 9 [Moving Target Away (right) U-shaped Opto]**

J1-1	GRN	RX of Moving Target Away U-shaped opto
J1-2	WHT	RX of Moving Target Away U-shaped opto
J1-3	BLK	TX of Moving Target Away U-shaped opto
J1-4	RED	TX of Moving Target Away U-shaped opto

**J2 Opto #2 Connections**

J2-1	Not Used
J2-2	Not Used
J2-3	Not Used
J2-4	Not Used

**J3 Matrixed Sw 11 [Left Orbit Made Opto Pair]**

J3-1	GRN	RX of Left Orbit Made opto pair ("E" lead)
J3-2	WHT	RX of Left Orbit Made opto pair ("C" lead)
J3-3	BLK	TX of Left Orbit Made opto pair ("K" lead)
J3-4	RED	TX of Left Orbit Made opto pair ("A" lead)

**J4 Matrixed Sw 12 [Phone Scoop Enter Opto Pair]**

J4-1	GRN	RX of Phone Scoop Enter opto pair ("E" lead)
J4-2	WHT	RX of Phone Scoop Enter opto pair ("C" lead)
J4-3	BLK	TX of Phone Scoop Enter opto pair ("K" lead)
J4-4	RED	TX of Phone Scoop Enter opto pair ("A" lead)

**J5 Matrixed Sw 13 [Theater Enter Opto Pair]**

J5-1	GRN	RX of Theater Enter opto pair ("E" lead)
J5-2	WHT	RX of Theater Enter opto pair ("C" lead)
J5-3	BLK	TX of Theater Enter opto pair ("K" lead)
J5-4	RED	TX of Theater Enter opto pair ("A" lead)

**J6 Opto #6 Connections**

J6-1	Not Used
J6-2	Not Used
J6-3	Not Used
J6-4	Not Used

**J7 Opto #7 Connections**

J7-1	Not Used
J7-2	Not Used
J7-3	Not Used
J7-4	Not Used

**J8 Opto #8 Connections**

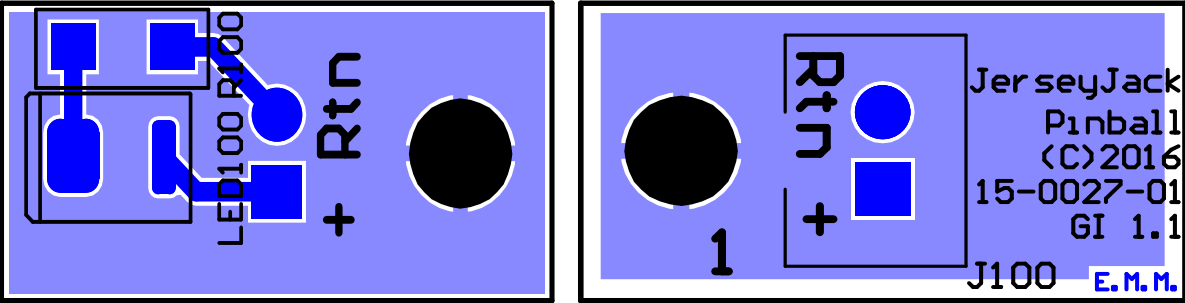
J8-1	Not Used
J8-2	Not Used
J8-3	Not Used
J8-4	Not Used

**J9 Matrixed Switches**

J9-1	GRN-BRN	Matrixed switches, Column 2 from I/O Board, J201-2
J9-2	WHT-BLK	Matrixed switches, Row 1 from I/O Board, J200-1
J9-3	WHT-BRN	Matrixed switches, Row 2 from I/O Board, J200-2
J9-4	WHT-RED	Matrixed switches, Row 3 from I/O Board, J200-3
J9-5	WHT-ORN	Matrixed switches, Row 4 from I/O Board, J200-4
J9-6	WHT-YEL	Matrixed switches, Row 5 from I/O Board, J200-5
J9-7	WHT-GRN	Matrixed switches, Row 6 from I/O Board, J200-6
J9-8	WHT-BLU	Matrixed switches, Row 7 from I/O Board, J200-7
J9-9	WHT-VIO	Matrixed switches, Row 8 from I/O Board, J200-8

**PWR1 Power Input**

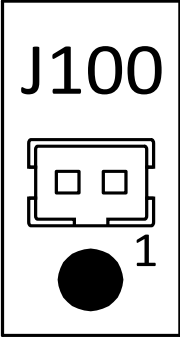
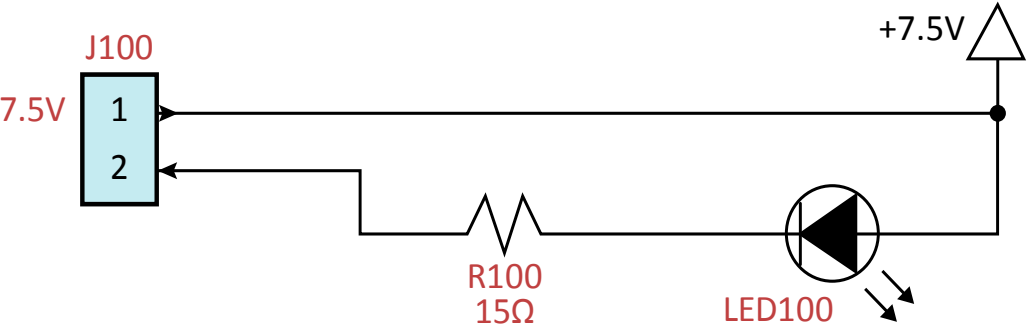
PWR1-1	RED	+5VDC from Primary ATX Pwr Supply
PWR1-2	BLK	Ground from Primary ATX Pwr Supply
PWR1-3	Not Used	
PWR1-4	Not Used	



GI LED Board, 2.5mm  
15-000027-01

Component(s)	Part Number	Description
R100	124-0015-254	Resistor, 1206 SMT, 15Ω, 0.25W, 5%
LED100	24-0019-0S	LED, SMT, High-Power, Cool White, 5700K
J100	30-2202-02	Header, Male, 2-Pin, 2.5mm

GI LED Board, 2.5mm  
15-000027-01



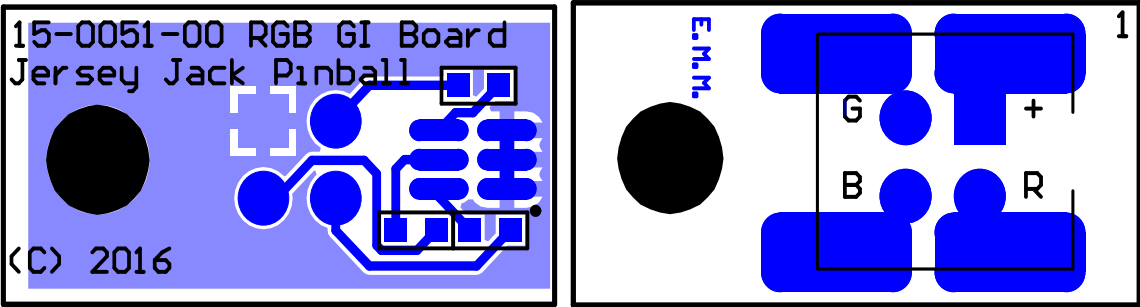
GI LED Board, 2.5mm  
15-000027-01  
Connector Pin-outs

**J100 LED Control/Power Input**

J100-1	GRY	+7.5VDC from BAG Controller Board, an odd-numbered GI connector (J105-J113) pin
J100-2	GRY- <b>XXX</b>	LED100 return to BAG Controller Board, an even-numbered GI connector (J105-J113) pin

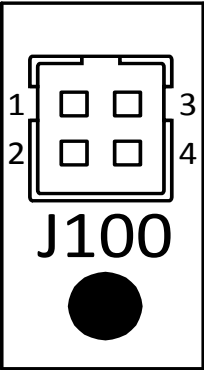
**Note:** **XXX** specifies the color of the stripe on the second wire (BLK, BRN, RED ORN, YEL, GRN, BLU or VIO).



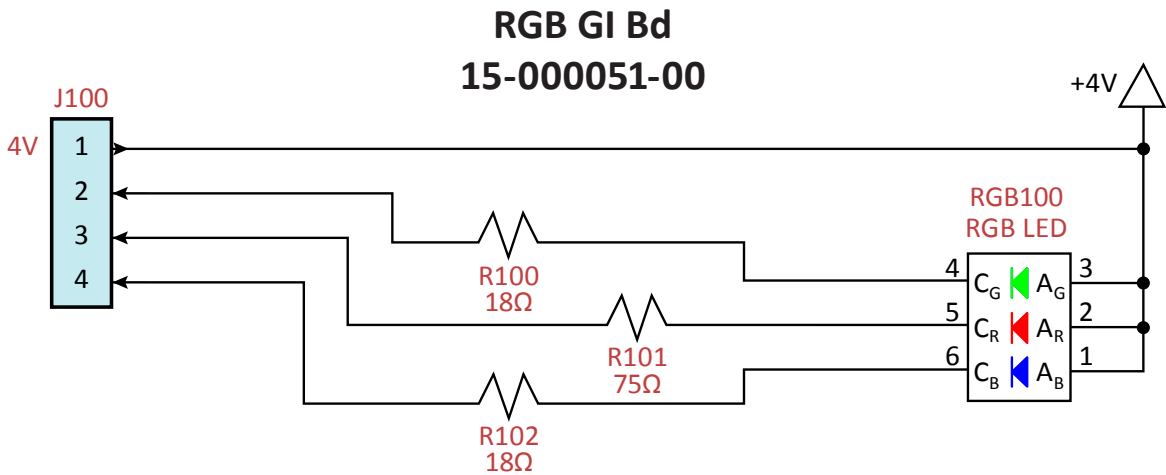


RGB GI Bd  
15-000051-00

Component(s)	Part Number	Description
R100, R102	122-0018-102	Resistor, 0603 SMT, 18Ω, 0.1W, 1%
R101	122-0075-102	Resistor, 0603 SMT, 75Ω, 0.1W, 1%
RGB100	24-0016-00	LED, SMT, High-Power RGB, 624/527/470nm
J100	30-2203-04	Header, Male, 4-Pin, 2 Rows, 2.5mm



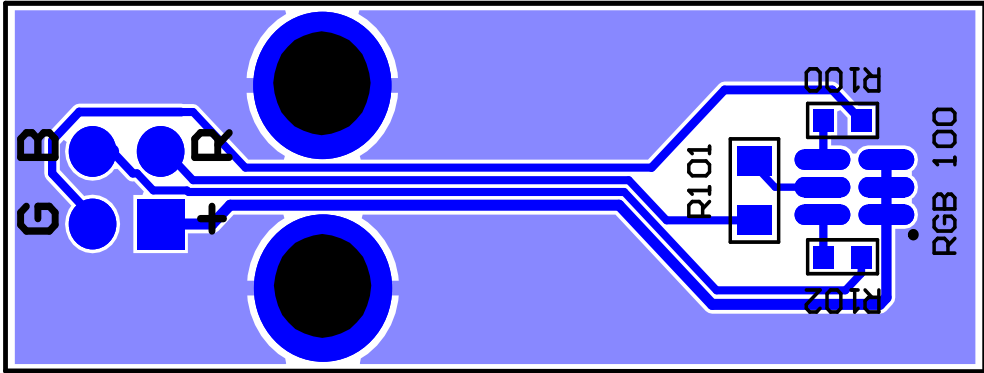
RGB GI Bd  
15-000051-00  
Connector Pin-out



**J100 RGB LED Control/Power Input**

J100-1	XXX	+4VDC from a main RGB LED bd (W1-W10)
J100-2	XXX-GRN	RGB100 GRN return to a main RGB LED bd (W1-W10)
J100-3	XXX-RED	RGB100 RED return to a main RGB LED bd (W1-W10)
J100-4	XXX-BLU	RGB100 BLU return to a main RGB LED bd (W1-W10)

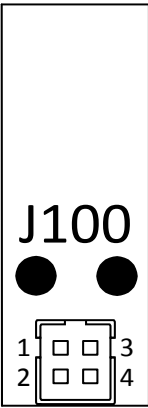
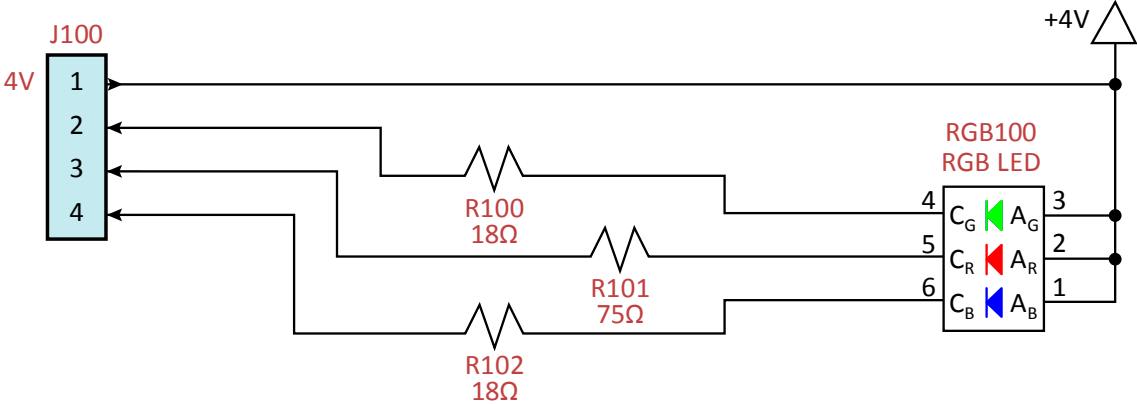
**Note:** XXX specifies the base color of the wires in the connector (BLK, BRN, RED, ORN, YEL, GRN, BLU or VIO). If the base color matches the stripe (GRN, RED or BLU), a GRY stripe is used for that wire.



Single RGB LED Board, 2.5mm  
15-000028-01

Component(s)	Part Number	Description
R100, R102	122-0018-102	Resistor, 0603 SMT, 18Ω, 0.1W, 1%
R101	120-0075-122	Resistor, 0805 SMT, 75Ω, 0.125W, 1%
RGB100	24-0016-00	LED, SMT, High-Power RGB, 624/527/470nm
J100	30-2203-04	Header, Male, 4-Pin, 2 Rows, 2.5mm

Single RGB LED Board, 2.5mm  
15-000028-01

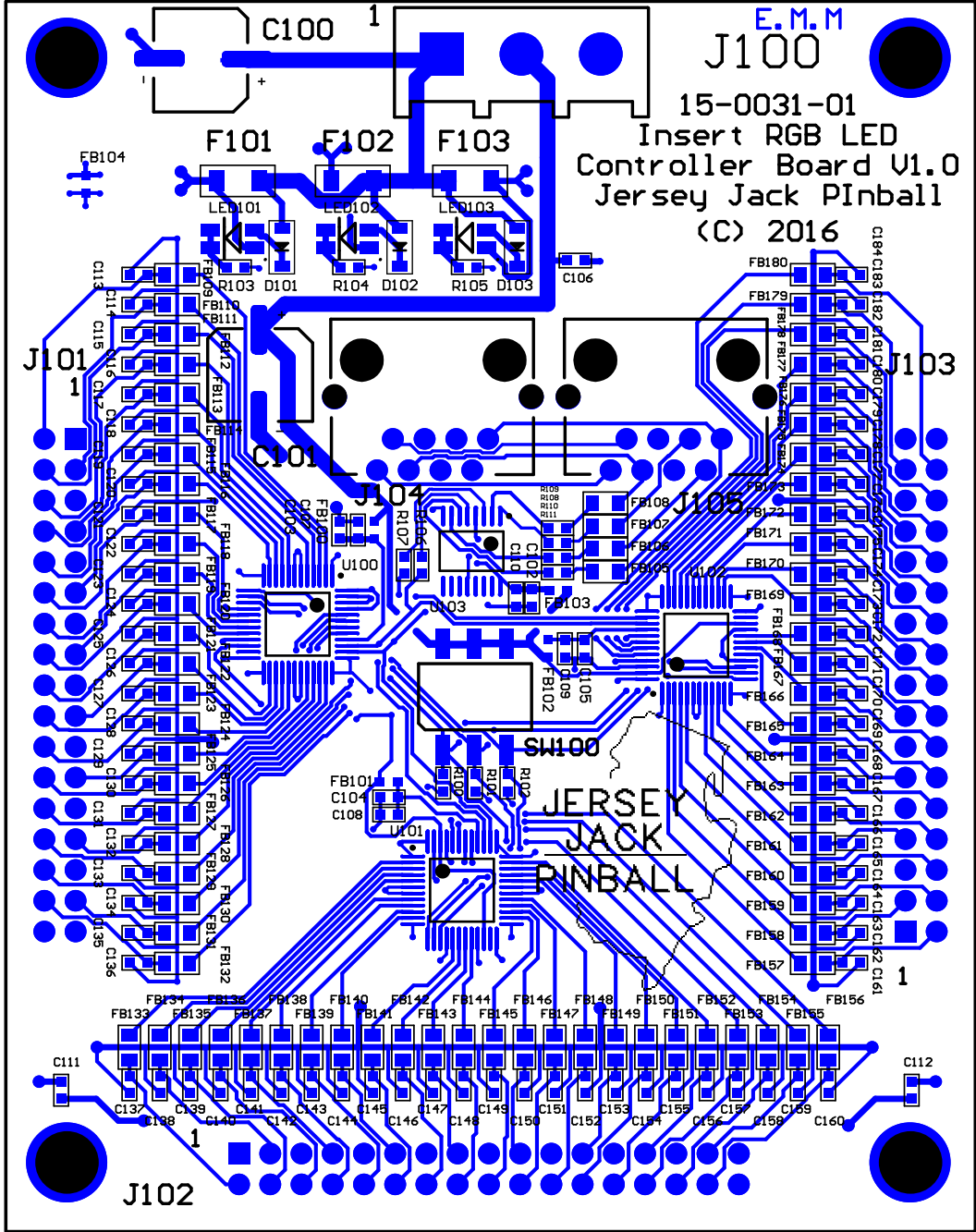


Single RGB LED Board, 2.5mm  
15-000028-01  
Connector Pin-outs

**J100 RGB LED Control/Power Input**

J100-1	XXX	+4VDC from an RGB LED Controller Board, J101, J102 or J103
J100-2	XXX-GRN	RGB100 GRN return to an RGB LED Controller Board, J101, J102 or J103
J100-3	XXX-RED	RGB100 RED return to an RGB LED Controller Board, J101, J102 or J103
J100-4	XXX-BLU	RGB100 BLU return to an RGB LED Controller Board, J101, J102 or J103

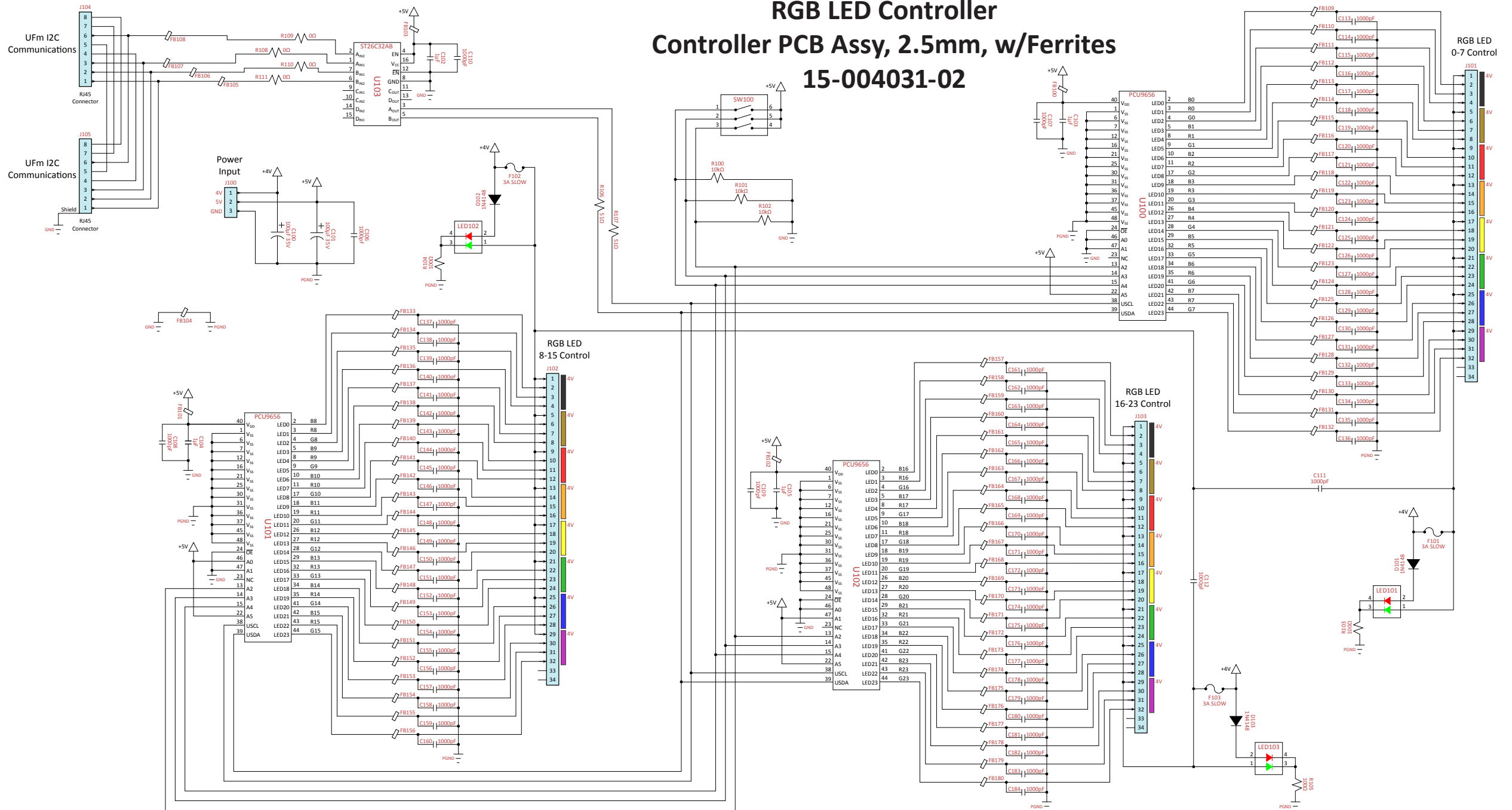
**Note:** XXX specifies the base color of the wires in the connector (BLK, BRN, RED, ORN, YEL, GRN, BLU or VIO). If the base color matches the stripe (GRN, RED or BLU), a GRY stripe is used for that wire.



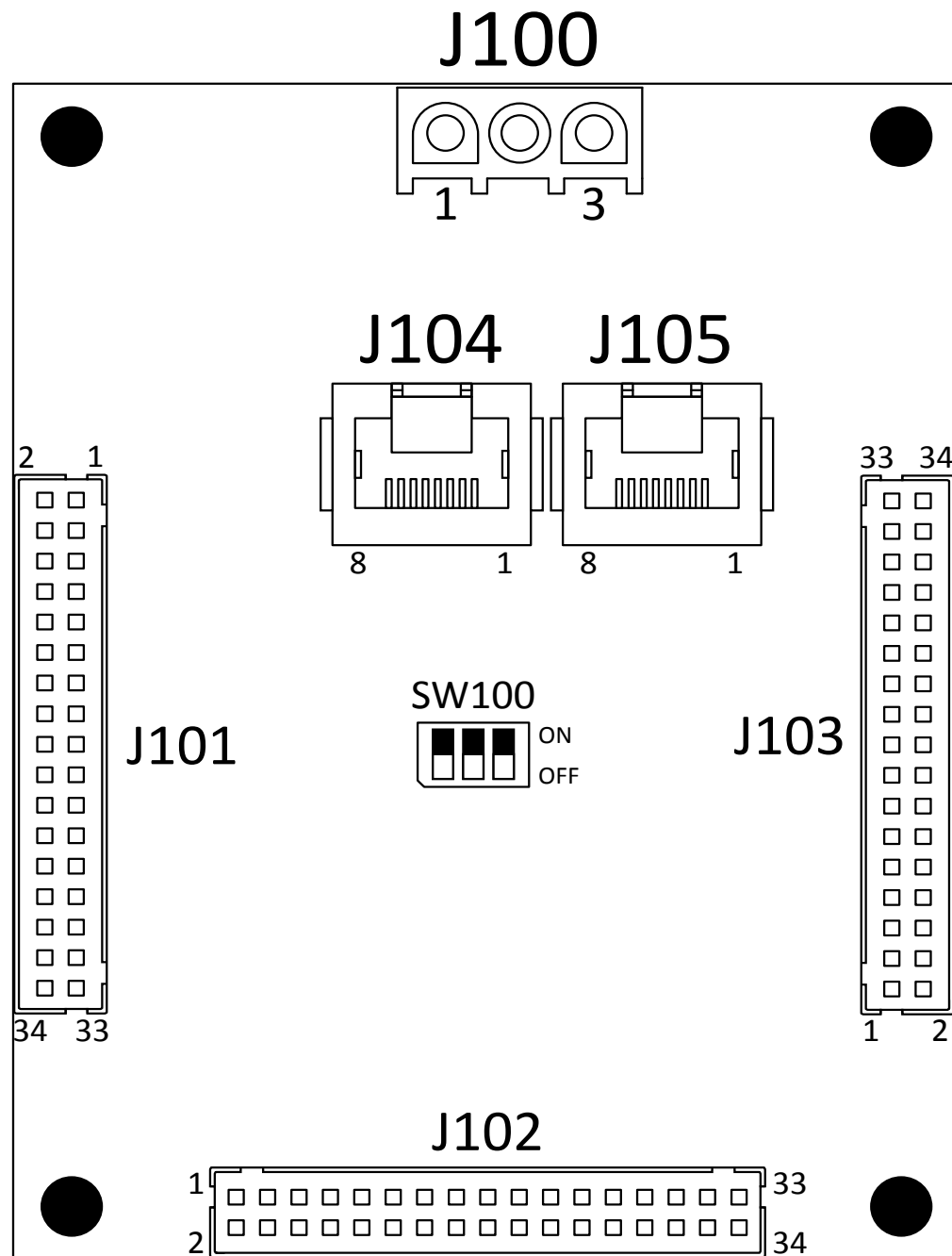
RGB LED Controller PCB Assy, 2.5mm, w/Ferrites  
15-004031-02

Component(s)	Part Number	Description
BARE PCB	15-0031-01	RGB LED Controller <b>Board, 2.5mm</b>
C100, C101	109-100M-035	Capacitor, Elect (Radial), 100μF, 35V, 20%
C102-C105	103-105Z-016	Capacitor, MLCC, 0603 SMT, 1μF, 16V, +80%, -20%
C106-C184	103-102K-050	Capacitor, MLCC, 0603 SMT, 1000pF, 50V, 10%
D101-D103	110-1001-0S	Diode, 1N4148, SMT, 100V, 300mA
F101-F103	170-6303-SS	Fuse, Slow, 1206 SMT, 3A, 63V
FB100-FB104	195-5002-0S	EMI Filter Bead, 0603 SMT, 2.2kΩ at 100MHz, 150mA
FB105-FB180	195-5003-0S	EMI Filter Bead, 0805 SMT, 2.5kΩ at 100MHz, 200mA
LED101-LED103	24-0020-0S	LED, 1210 SMD, RED/GRN, 569/621nm
R100-R102	122-10K0-104	Resistor, 0603 SMT, 10kΩ, 0.1W, 5%
R103-R105	122-0100-104	Resistor, 0603 SMT, 100Ω, 0.1W, 5%
R106, R107	122-51P1-102	Resistor, 0603 SMT, 51.1Ω, 0.1W, 1%
R108-R111	122-0000-100	Resistor, 0603 SMT, 0Ω
SW100	18-8003-0S	Switch, DIP, 3-pos, 2.54mm
U100-U102	140-0005-0S	LED Driver, I2C-Bus, 24-Bit, 5MHz, PCU9656, LQFP-48 SMT
U103	141-0020-0S	Quad Diff Line Rcvr w/3-State Outputs, ST26C32AB, TSSOP-16 SMT
J100	30-2005-03	Header, Male, 3-pin, 6.35mm
J101-J103	30-2203-34	Header, Male, 34-Pin, 2 Rows, 2.5mm
J104, J105	30-2510-01	Jack Header, w/Shield, RJ45 (Ethernet)

The schematic diagram illustrates a 100MHz clock divider circuit. It features a SW100 switch connected to a multi-pin connector. The circuit includes three resistors: R100 (10kΩ), R101 (10kΩ), and R102 (10kΩ), and a capacitor C103 (100pF). The output of the circuit is connected to a multi-pin connector with pins 0 through 39. The circuit is powered by a +5V supply.







## RGB LED Controller Board, 2.5mm, w/Ferrites

**15-004031-02**

**Connector Pin-outs**

### **J100 Power Input**

J100-1	WHT	+4VDC from 7.5/4VDC Pwr Supply
J100-2	RED	+5VDC from Primary ATX Pwr Supply
J100-3	BLK	Ground from 7.5/4VDC Pwr Supply

### **J101 Left Ramp, Left Side RGB LED Control (RGB Cable 19-009030-50)**

**RGB LED 150 [Left Ramp #1 (left, high)]**

J101-1	BLK	+4VDC to RGB GI Board 150, J100-1
J101-2	BLK-BLU	RGB100 BLU return from RGB GI Board 150, J100-4
J101-3	BLK-RED	RGB100 RED return from RGB GI Board 150, J100-3
J101-4	BLK-GRN	RGB100 GRN return from RGB GI Board 150, J100-2

**RGB LED 149 [Left Ramp #2]**

J101-5	BRN	+4VDC to RGB GI Board 149, J100-1
J101-6	BRN-BLU	RGB100 BLU return from RGB GI Board 149, J100-4
J101-7	BRN-RED	RGB100 RED return from RGB GI Board 149, J100-3
J101-8	BRN-GRN	RGB100 GRN return from RGB GI Board 149, J100-2

**RGB LED 148 [Left Ramp #3]**

J101-9	RED	+4VDC to RGB GI Board 148, J100-1
J101-10	RED-BLU	RGB100 BLU return from RGB GI Board 148, J100-4
J101-11	RED-GRY	RGB100 RED return from RGB GI Board 148, J100-3
J101-12	RED-GRN	RGB100 GRN return from RGB GI Board 148, J100-2


**RGB LED 147 [Left Ramp #4]**

J101-13	ORN	+4VDC to RGB GI Board 147, J100-1
J101-14	ORN-BLU	RGB100 BLU return from RGB GI Board 147, J100-4
J101-15	ORN-RED	RGB100 RED return from RGB GI Board 147, J100-3
J101-16	ORN-GRN	RGB100 GRN return from RGB GI Board 147, J100-2





**RGB LED 146 [Left Ramp #5]**





J101-17	YEL	+4VDC to RGB GI Board 146, J100-1
J101-18	YEL-BLU	RGB100 BLU return from RGB GI Board 146, J100-4
J101-19	YEL-RED	RGB100 RED return from RGB GI Board 146, J100-3
J101-20	YEL-GRN	RGB100 GRN return from RGB GI Board 146, J100-2

J101 Left Ramp, Left Side RGB LED Control (RGB Cable 19-009030-50, cont.)







RGB LED 145 [Left Ramp #6 (left, low)]			
J101-21		GRN	+4VDC to RGB GI Board 145, J100-1
J101-22		GRN-BLU	RGB100 BLU return from RGB GI Board 145, J100-4
J101-23		GRN-RED	RGB100 RED return from RGB GI Board 145, J100-3
J101-24		GRN-GRY	RGB100 GRN return from RGB GI Board 145, J100-2
J101-25		Not Used	
J101-26		Not Used	
J101-27		Not Used	
J101-28		Not Used	
J101-29		Not Used	
J101-30		Not Used	
J101-31		Not Used	
J101-32		Not Used	
J101-33		Not Used	
J101-34		Not Used	

J102 Upper Left Ramp/PF Sign/Left PB RGB LED Control (RGB Cable 19-009030-51)



RGB LED 153 [Crazy Mode (PF sign)]			
J102-1		BLK	+4VDC to RGB GI Board 153, J100-1 , thru 4-pin inline connector
J102-2		BLK-BLU	RGB100 BLU return from RGB GI Board 153, J100-4 , thru 4-pin inline connector
J102-3		BLK-RED	RGB100 RED return from RGB GI Board 153, J100-3 , thru 4-pin inline connector
J102-4		BLK-GRN	RGB100 GRN return from RGB GI Board 153, J100-2 , thru 4-pin inline connector
RGB LED 154 [Left Pop Bumper]			
J102-5		BRN	+4VDC to Pop Bumper RGB Board 154, J100-1, thru 4-pin inline connector
J102-6		BRN-BLU	RGB100 BLU return from Pop Bumper RGB Board 154, J100-4, thru 4-pin inline connector
J102-7		BRN-RED	RGB100 RED return from Pop Bumper RGB Board 154, J100-3 , thru 4-pin inline connector
J102-8		BRN-GRN	RGB100 GRN return from Pop Bumper RGB Board 154, J100-2 , thru 4-pin inline connector
RGB LED 155 [Upper Left Ramp #6 (low)]			
J102-9		RED	+4VDC to RGB GI Board 155, J100-1
J102-10		RED-BLU	RGB100 BLU return from RGB GI Board 155, J100-4
J102-11		RED-GRY	RGB100 RED return from RGB GI Board 155, J100-3
J102-12		RED-GRN	RGB100 GRN return from RGB GI Board 155, J100-2
RGB LED 156 [Upper Left Ramp #5]			
J102-13		ORN	+4VDC to RGB GI Board 156, J100-1
J102-14		ORN-BLU	RGB100 BLU return from RGB GI Board 156, J100-4
J102-15		ORN-RED	RGB100 RED return from RGB GI Board 156, J100-3
J102-16		ORN-GRN	RGB100 GRN return from RGB GI Board 156, J100-2

RGB LED 157 [Upper Left Ramp #4]			
J102-17		YEL	+4VDC to RGB GI Board 157, J100-1
J102-18		YEL-GRN	RGB100 BLU return from RGB GI Board 157, J100-4
J102-19		YEL-RED	RGB100 RED return from RGB GI Board 157, J100-3
J102-20		YEL-BLU	RGB100 GRN return from RGB GI Board 157, J100-2
RGB LED 158 [Upper Left Ramp #3]			
J102-21		GRN	+4VDC to RGB GI Board 158, J100-1
J102-22		GRN-BLU	RGB100 BLU return from RGB GI Board 158, J100-4
J102-23		GRN-RED	RGB100 RED return from RGB GI Board 158, J100-3
J102-24		GRN-GRY	RGB100 GRN return from RGB GI Board 158, J100-2
RGB LED 159 [Upper Left Ramp #2]			
J102-25		BLU	+4VDC to RGB GI Board 159, J100-1
J102-26		BLU-GRY	RGB100 BLU return from RGB GI Board 159, J100-4
J102-27		BLU-RED	RGB100 RED return from RGB GI Board 159, J100-3
J102-28		BLU-GRN	RGB100 GRN return from RGB GI Board 159, J100-2
RGB LED 160 [Upper Left Ramp #1 (high)]			
J102-29		VIO	+4VDC to RGB GI Board 160, J100-1
J102-30		VIO-BLU	RGB100 BLU return from RGB GI Board 160, J100-4
J102-31		VIO-RED	RGB100 RED return from RGB GI Board 160, J100-3
J102-32		VIO-GRN	RGB100 GRN return from RGB GI Board 160, J100-2
J102-33		Not Used	
J102-34		Not Used	

**J103 Left Ramp, Right Side/PF Sign RGB LED Control (RGB Cable 19-009030-52)**

RGB LED 166 [Left Ramp #7 (right, high)]			
J103-1		BLK	+4VDC to RGB GI Board 166, J100-1
J103-2		BLK-BLU	RGB100 BLU return from RGB GI Board 166, J100-4
J103-3		BLK-RED	RGB100 RED return from RGB GI Board 166, J100-3
J103-4		BLK-GRN	RGB100 GRN return from RGB GI Board 166, J100-2
RGB LED 165 [Left Ramp #8]			
J103-5		BRN	+4VDC to RGB GI Board 165, J100-1
J103-6		BRN-BLU	RGB100 BLU return from RGB GI Board 165, J100-4
J103-7		BRN-RED	RGB100 RED return from RGB GI Board 165, J100-3
J103-8		BRN-GRN	RGB100 GRN return from RGB GI Board 165, J100-2
RGB LED 164 [Left Ramp #9]			
J103-9		RED	+4VDC to RGB GI Board 164, J100-1
J103-10		RED-BLU	RGB100 BLU return from RGB GI Board 164, J100-4
J103-11		RED-GRY	RGB100 RED return from RGB GI Board 164, J100-3
J103-12		RED-GRN	RGB100 GRN return from RGB GI Board 164, J100-2
RGB LED 163 [Left Ramp #10]			
J103-13		ORN	+4VDC to RGB GI Board 163, J100-1
J103-14		ORN-BLU	RGB100 BLU return from RGB GI Board 163, J100-4
J103-15		ORN-RED	RGB100 RED return from RGB GI Board 163, J100-3
J103-16		ORN-GRN	RGB100 GRN return from RGB GI Board 163, J100-2
RGB LED 162 [Left Ramp #11]			
J103-17		YEL	+4VDC to RGB GI Board 162, J100-1
J103-18		YEL-BLU	RGB100 BLU return from RGB GI Board 162, J100-4
J103-19		YEL-RED	RGB100 RED return from RGB GI Board 162, J100-3
J103-20		YEL-GRN	RGB100 GRN return from RGB GI Board 162, J100-2
RGB LED 161 [Left Ramp #12 (right, low)]			
J103-21		GRN	+4VDC to RGB GI Board 161, J100-1
J103-22		GRN-BLU	RGB100 BLU return from RGB GI Board 161, J100-4
J103-23		GRN-RED	RGB100 RED return from RGB GI Board 161, J100-3
J103-24		GRN-GRY	RGB100 GRN return from RGB GI Board 161, J100-2

**RGB LED 167 [Extra Ball (PF sign)]**

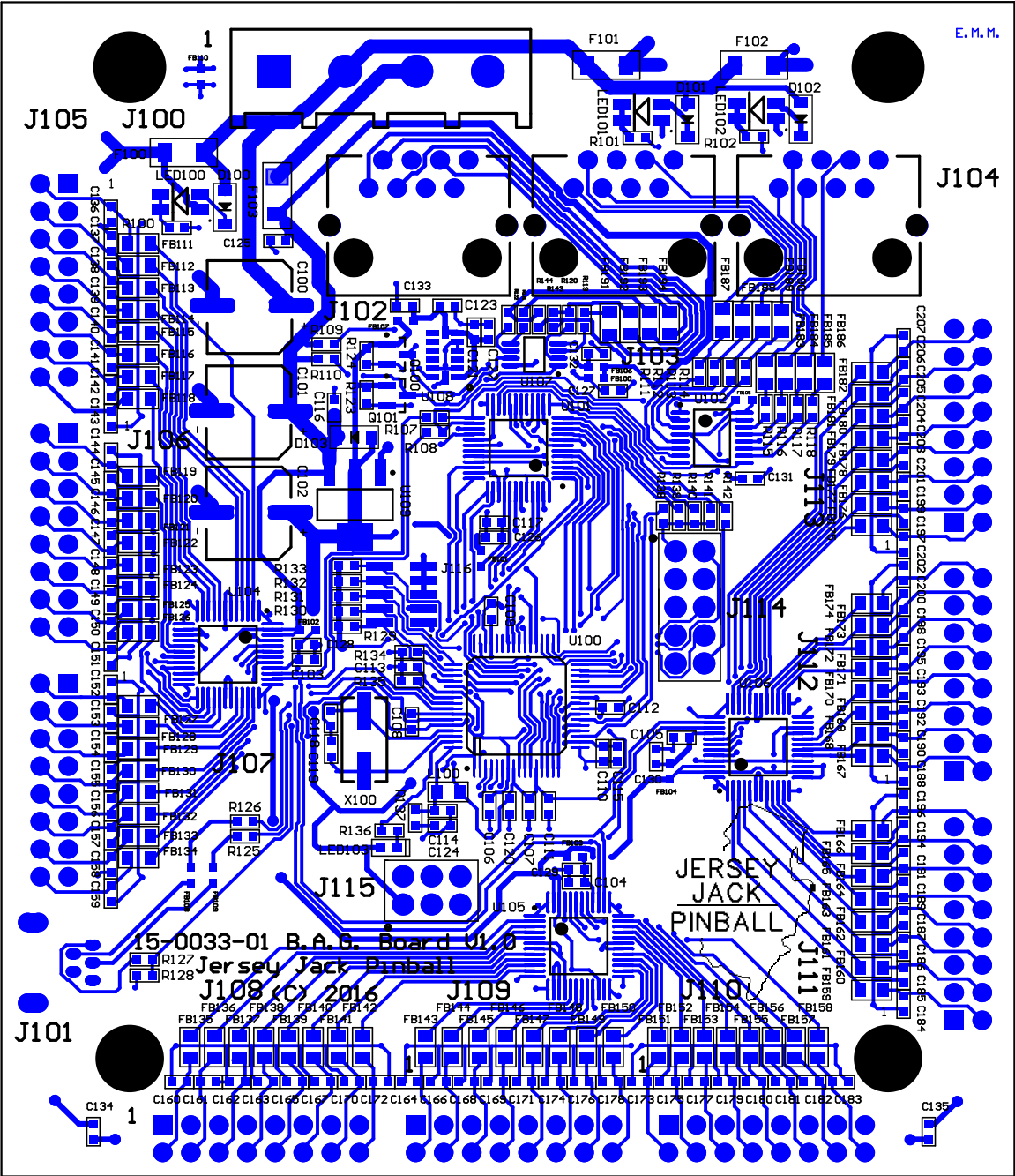
J103-25		BLU	+4VDC to RGB GI Board 167, J100-1, thru 8-pin inline connector
J103-26		BLU-GRY	RGB100 BLU return from RGB GI Board 167, J100-4, thru 8-pin inline connector
J103-27		BLU-RED	RGB100 RED return from RGB GI Board 167, J100-3, thru 8-pin inline connector
J103-28		BLU-GRN	RGB100 GRN return from RGB GI Board 167, J100-2, thru 8-pin inline connector
RGB LED 168 [Quick Multiball (PF sign)]			
J103-29		VIO	+4VDC to RGB GI Board 168, J100-1, thru 8-pin inline connector
J103-30		VIO-BLU	RGB100 BLU return from RGB GI Board 168, J100-4, thru 8-pin inline connector
J103-31		VIO-RED	RGB100 RED return from RGB GI Board 168, J100-3, thru 8-pin inline connector
J103-32		VIO-GRN	RGB100 GRN return from RGB GI Board 168, J100-2, thru 8-pin inline connector
J103-33		Not Used	
J103-34		Not Used	

**J104 UFM I2C Communications**

CAT5 or higher Ethernet cable from RGB LED Controller Bd C, J105

**J105 UFM I2C Communications**

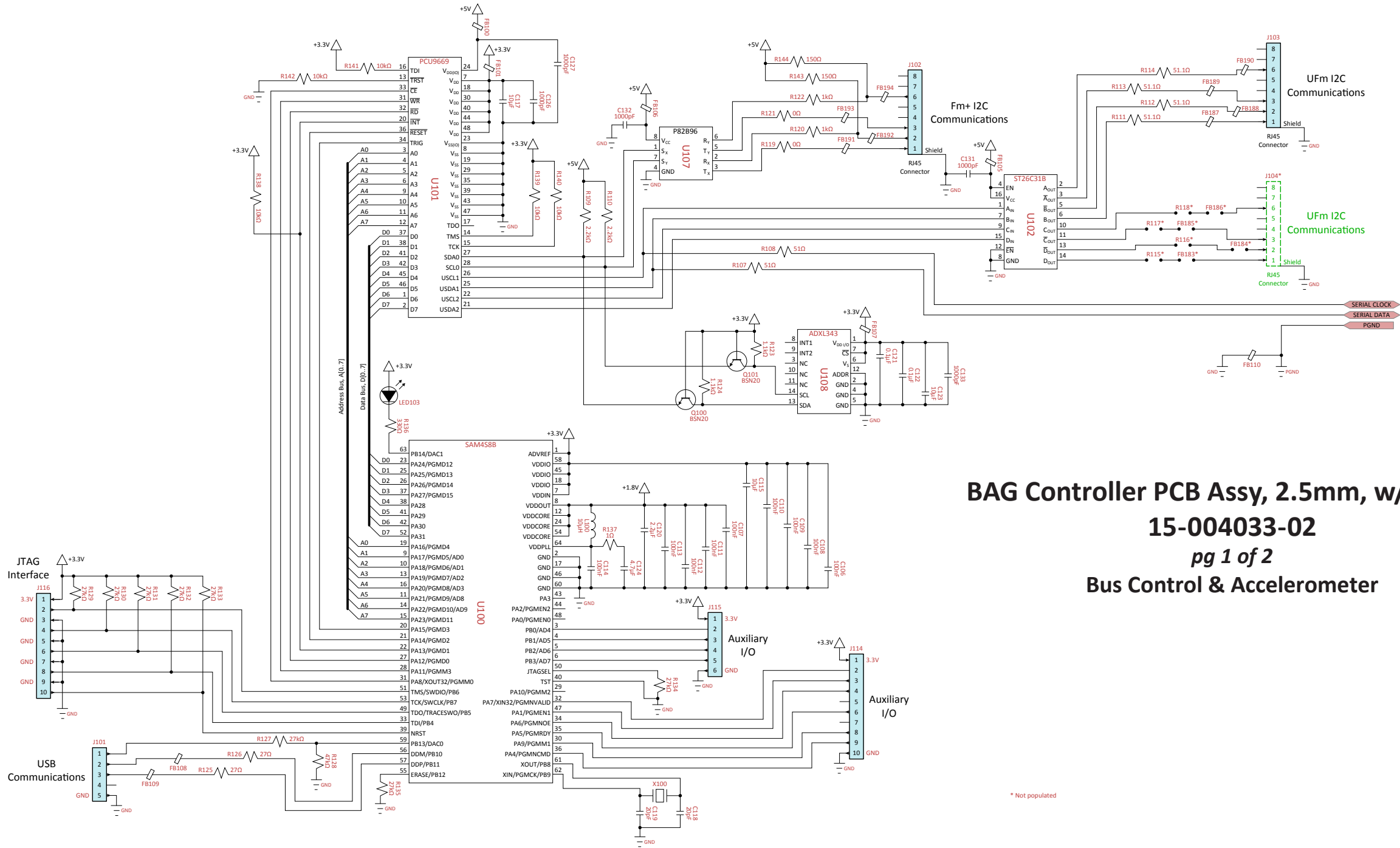
Not Used



**BAG Controller PCB Assy, 2.5mm, w/Ferrites**  
**15-004033-02**

Component(s)	Part Number	Description	Component(s)	Part Number	Description
BARE PCB	15-0033-01	Bus, Accelerometer & GI Controller Bd, 2.5mm	R120, R122	122-001K-104	Resistor, 0603 SMT, 1kΩ, 0.1W, 5%
C100-C102	109-100M-035	Capacitor, Elect (Radial), 100μF, 35V, 20%	R123, R124	122-01K1-104	Resistor, 0603 SMT, 1.1kΩ, 0.1W, 5%
C103-C105	103-105Z-016	Capacitor, MLCC, 0603 SMT, 1μF, 16V, +80%, -20%	R125, R126	122-0027-102	Resistor, 0603 SMT, 27Ω, 0.1W, 1%
C106-C114, C121, C122	103-104K-025	Capacitor, MLCC, 0603 SMT, 0.1μF, 25V, 10%	R127, R129-R135	122-027K-104	Resistor, 0603 SMT, 27kΩ, 0.1W, 5%
C115-C117	103-106M-016	Capacitor, MLCC, 0603 SMT, 10μF, 16V, 20%	R128	122-047K-102	Resistor, 0603 SMT, 47kΩ, 0.1W, 1%
C118, C119	103-200J-050	Capacitor, MLCC, 0603 SMT, 20pF, 50V, 5%	R137	122-0001-104	Resistor, 0603 SMT, 1Ω, 0.1W, 5%
C120	103-225K-016	Capacitor, MLCC, 0603 SMT, 2.2μF, 16V, 10%	R138-R142	122-010K-104	Resistor, 0603 SMT, 10kΩ, 0.1W, 5%
C123	103-106M-006	Capacitor, MLCC, 0603 SMT, 10μF, 6.3V, 20%	R143, R144	122-0150-102	Resistor, 0603 SMT, 150Ω, 0.1W, 1%
C124	103-475K-006	Capacitor, MLCC, 0603 SMT, 4.7μF, 6.3V, 10%	R115-R118		Not Populated
C125-C207	103-102K-050	Capacitor, MLCC, 0603 SMT, 1000pF, 50V, 10%	U100	141-0021-0S	Microcontroller, 32-Bit, 120MHz, SAM4S8B, LQFP-64 SMT
D103	110-0011-0S	Diode, MBR0520L, SMT, Schottky Rectifier, 0.5A	U101	141-0022-0S	I2C-Bus Controller, UfM, 3-Ch, PCU9669B, LQFP-48 SMT
D100-D102	110-1001-0S	Diode, 1N4148, SMT, 100V, 300mA	U102	140-0006-0S	Quad Diff Line Driver w/3-State Outputs, ST26C31B, TSSOP-16 SMT
F100-F103	170-6303-SS	Fuse, Slow, 1206 SMT, 3A, 63V	U104-U106	140-0005-0S	LED Driver, I2C-Bus, 24-Bit, 5MHz, PCU9656, LQFP-48 SMT
FB100-FB110	195-5002-0S	EMI Filter Bead, 0603 SMT, 2.2kΩ at 100MHz, 150mA	U107	141-0023-0S	Dual Bidirectional I2C-Bus Buffer, P82B96, SOT-505-8 SMT
FB111-FB182, FB187-FB194 FB183-FB186	195-5003-0S	EMI Filter Bead, 0805 SMT, 2.5kΩ at 100MHz, 200mA	U108	141-0024-0S	Accelerometer, 3-Axis, I2C-Bus, ADXL343, LGA-14 SMT
L100	190-0008-0S	Inductor, SMD, 10μH, 350mA, 50MHz	U109	142-0009-0S	Voltage Regulator, TLV1117, SOT-223-4 SMT, 3.3V, 300mA
LED100-LED102	24-0020-0S	LED, 1210 SMD, RED/GRN, 569/621nm	X100	160-0003-0S	Crystal, 12MHz, 120-20-3X-TR, SMT, 20pF, 50PPM
LED103	24-0021-0S	LED, 0603 SMD, YEL, 571nm	J100	30-2005-04	Header, Male, 4-pin, 6.35mm
Q100, Q101	130-0006-0S	MOSFET, BSN20-7, N-Ch, SOT-23-3, 50V, 500mA	J101	31-2507-01	Receptacle, Mini USB 2.0, Type B
R100-R102, R136	122-0330-102	Resistor, 0603 SMT, 330Ω, 0.1W, 1%	J102, J103	30-2510-01	Jack Header, w/Shield, RJ45 (Ethernet)
R107, R108, R111-R114	122-51P1-102	Resistor, 0603 SMT, 51.1Ω, 0.1W, 1%	J104		Not Populated
R109, R110	122-02K2-104	Resistor, 0603 SMT, 2.2kΩ, 0.1W, 5%	J105-J113	30-2203-16	Header, Male, 16-Pin, 2 Rows, 2.5mm
R119, R121	122-0000-100	Resistor, 0603 SMT, 0Ω	J114	31-2513-10	Connector Header, Male, 10-pin, 2 Rows, 2.54mm
			J115	31-2513-06	Connector Header, Male, 6-pin, 2 Rows, 2.54mm
			J116	31-2514-10	Header, Male, 10-pin, 2 Rows, 1.27mm



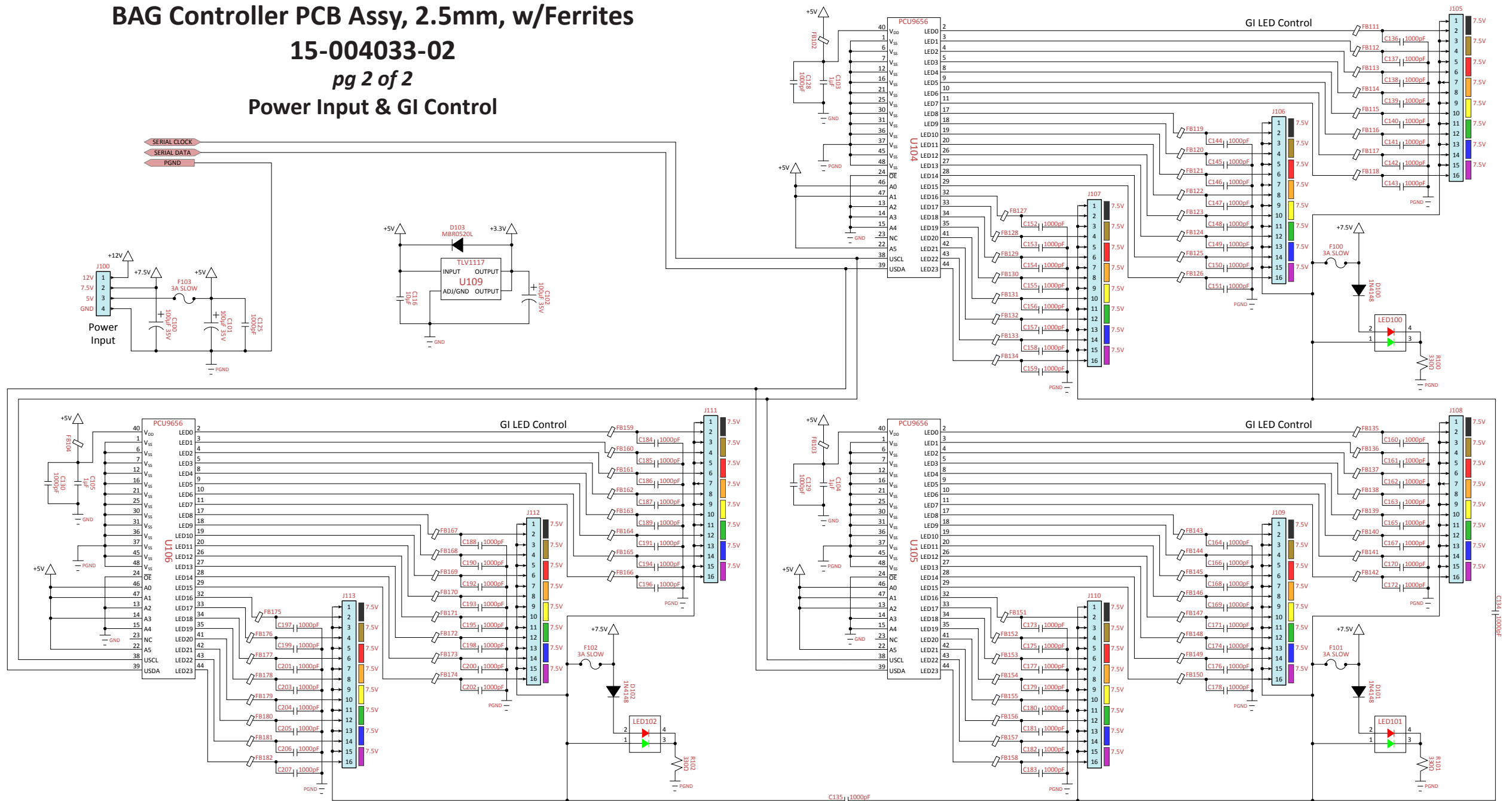


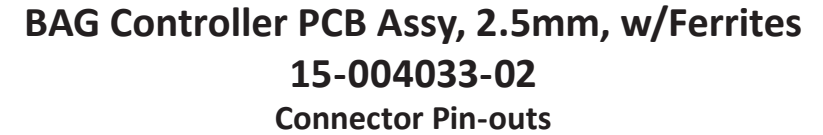
# BAG Controller PCB Assy, 2.5mm, w/Ferrites

15-004033-02

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## Power Input & GI Control





J100-1	Not Used	
J100-2	VIO	+7.5VDC from 7.5/4VDC Pwr Supply
J100-3	RED	+5VDC from Primary ATX Pwr Supply (jumped from RGB LED Controller Bd B, J100-2)
J100-4	BLK	Ground from 7.5/4VDC Pwr Supply

USB Mini-B to 2.0 A cable, run from back of CPU (back of PCB chassis), USB port

CAT5 or higher Ethernet cable to Smaug Controller Bd, J101











CAT5 or higher Ethernet cable to RGB LED Controller Bd B, J104

Not Used (Not Populated)









**J105 GI Control**

J105-1	Not Used
J105-2	Not Used
J105-3	Not Used
J105-4	Not Used
J105-5	Not Used
J105-6	Not Used
J105-7	Not Used
J105-8	Not Used
J105-9	Not Used
J105-10	Not Used
J105-11	Not Used
J105-12	Not Used
J105-13	Not Used
J105-14	Not Used
J105-15	Not Used
J105-16	Not Used







**J106 Back Panel Flasher Control (Flasher Cable 19-003122-05)**

J106-1		GRY	+7.5V to GI Board 3G [Skyline Flasher #1 (left)], J100-1
J106-2		GRY-BLK	LED return from GI Board 3G [Skyline Flasher #1 (left)], J100-2
J106-3		GRY	+7.5V to GI Board 4B [Skyline Flasher #2], J100-1
J106-4		GRY-BRN	LED return from GI Board 4B [Skyline Flasher #2], J100-2
J106-5		GRY	+7.5V to GI Board 4R [Skyline Flasher #3], J100-1
J106-6		GRY-RED	LED return from GI Board 4R [Skyline Flasher #3], J100-2
J106-7		GRY	+7.5V to GI Board 4G [Skyline Flasher #4], J100-1
J106-8		GRY-ORN	LED return from GI Board 4G [Skyline Flasher #4], J100-2
J106-9		GRY	+7.5V to GI Board 5B [Skyline Flasher #5 (right)], J100-1
J106-10		GRY-YEL	LED return from GI Board 5B [Skyline Flasher #5 (right)], J100-2
J106-11			Not Used
J106-12			Not Used
J106-13			Not Used
J106-14			Not Used
J106-15			Not Used
J106-16			Not Used

















**J107 Lower Middle GI/Flasher Control (GI/Flasher Cable 19-003122-04)**

J107-1		GRY	+7.5V to GI Board 6R [Pop Bumper Flasher], J100-1
J107-2		GRY-BLK	LED return from GI Board 6R [Pop Bumper Flasher], J100-2
J107-3		GRY	+7.5V to GI Board 6G [Right Return #2 (lower)], J100-1
J107-4		GRY-BRN	LED return from GI Board 6G [Right Return #2 (lower)], J100-2
J107-5		GRY	+7.5V to GI Board 7B [Left Sling], J100-1
J107-6		GRY-RED	LED return from GI Board 7B [Left Sling], J100-2
J107-7		GRY	+7.5V to GI Board 7R [Left Return #2 (lower)], J100-1
J107-8		GRY-ORN	LED return from GI Board 7R [Left Return #2 (lower)], J100-2
J107-9			Not Used
J107-10			Not Used
J107-11			Not Used
J107-12			Not Used
J107-13			Not Used
J107-14			Not Used
J107-15			Not Used
J107-16			Not Used

**J108 Middle Flasher Control (Flasher Cable 19-003122-06)**

J108-1		GRY	+7.5V to GI Board 9B [Theater Flasher], J100-1
J108-2		GRY-BLK	LED return from GI Board 9B [Moving Target Flasher (left)], J100-2
J108-3		GRY	+7.5V to GI Board 9R [Moving Target Flasher (left)], J100-1, thru 4-pin inline connector
J108-4		GRY-BRN	LED return from GI Board 9R [Moving Target Flasher (left)], J100-2, thru 4-pin inline connector
J108-5		GRY	+7.5V to GI Board 9G [Moving Target Flasher (right)], J100-1, thru 4-pin inline connector
J108-6		GRY-RED	LED return from GI Board 9G [Moving Target Flasher (right)], J100-2, thru 4-pin inline connector
J108-7			Not Used
J108-8			Not Used
J108-9			Not Used
J108-10			Not Used
J108-11			Not Used
J108-12			Not Used
J108-13			Not Used
J108-14			Not Used
J108-15			Not Used
J108-16			Not Used

















**J109 Left Side GI Control (GI Cable 19-003122-03)**

J109-1		GRY	+7.5V to GI Board 11G [Left Ramps Area #4 (lower)], J100-1
J109-2		GRY-BLK	LED return from GI Board 11G [Left Ramps Area #4 (lower)], J100-2
J109-3		GRY	+7.5V to GI Board 12B [Left Side #1 (upper)], J100-1
J109-4		GRY-BRN	LED return from GI Board 12B [Left Side #1 (upper)], J100-2
J109-5		GRY	+7.5V to GI Board 12R [Left Side #2], J100-1
J109-6		GRY-RED	LED return from GI Board 12R [Left Side #2], J100-2
J109-7		GRY	+7.5V to GI Board 12G [Spider], J100-1
J109-8		GRY-ORN	LED return from GI Board 12G [Spider], J100-2
J109-9		GRY	+7.5V to GI Board 13B [Left Side #3], J100-1
J109-10		GRY-YEL	LED return from GI Board 13B [Left Side #3], J100-2
J109-11		GRY	+7.5V to GI Board 13R [Left Side #4], J100-1
J109-12		GRY-GRN	LED return from GI Board 13R [Left Side #4], J100-2
J109-13		GRY	+7.5V to GI Board 13G [Left Side #5 (lower)], J100-1
J109-14		GRY-BLU	LED return from GI Board 13G [Left Side #5 (lower)], J100-2
J109-15		VIO	+7.5V to GI Board 14B [Left Return #1 (upper)], J100-1
J109-16		GRY-VIO	LED return from GI Board 14B [Left Return #1 (upper)], J100-2

**J110 GI Control**

J110-1	Not Used
J110-2	Not Used
J110-3	Not Used
J110-4	Not Used
J110-5	Not Used
J110-6	Not Used
J110-7	Not Used
J110-8	Not Used
J110-9	Not Used
J110-10	Not Used
J110-11	Not Used
J110-12	Not Used
J110-13	Not Used
J110-14	Not Used
J110-15	Not Used
J110-16	Not Used

**J111 Upper GI Control (GI Cable 19-003122-01)**

J111-1		GRY	+7.5V to GI Board 17B [Left Ramps Area #3], J100-1
J111-2		GRY-BLK	LED return from GI Board 17B [Left Ramps Area #3], J100-2
J111-3		GRY	+7.5V to GI Board 17R [Left Ramps Area #2], J100-1
J111-4		GRY-BRN	LED return from GI Board 17R [Left Ramps Area #2], J100-2
J111-5		GRY	+7.5V to GI Board 17G [Left Ramps Area #1 (upper)], J100-1
J111-6		GRY-RED	LED return from GI Board 17G [Left Ramps Area #1 (upper)], J100-2
J111-7		GRY	+7.5V to GI Board 18B [Skyline #1 (left)], J100-1
J111-8		GRY-ORN	LED return from GI Board 18B [Skyline #1 (left)], J100-2
J111-9		GRY	+7.5V to GI Board 18R [Skyline #2], J100-1
J111-10		GRY-YEL	LED return from GI Board 18R [Skyline #2], J100-2
J111-11		GRY	+7.5V to GI Board 18G [Skyline #3], J100-1
J111-12		GRY-GRN	LED return from GI Board 18G [Skyline #3], J100-2
J111-13		GRY	+7.5V to GI Board 19B [Skyline #4], J100-1
J111-14		GRY-BLU	LED return from GI Board 19B [Skyline #4], J100-2
J111-15		VIO	+7.5V to GI Board 19R [Skyline #5], J100-1
J111-16		GRY-VIO	LED return from GI Board 19R [Skyline #5], J100-2

**J112 Right Side GI Control (GI Cable 19-003122-02)**

J112-1		GRY	+7.5V to GI Board 19G [Theater Exit], J100-1
J112-2		GRY-BLK	LED return from GI Board 19G [Theater Exit], J100-2
J112-3		GRY	+7.5V to GI Board 20B [Skyline #6 (right)], J100-1
J112-4		GRY-BRN	LED return from GI Board 20B [Skyline #6 (right)], J100-2
J112-5		GRY	+7.5V to GI Board 20R [Upper Right], J100-1
J112-6		GRY-RED	LED return from GI Board 20R [Upper Right], J100-2
J112-7		GRY	+7.5V to GI Board 20G [Pop Bumpers], J100-1
J112-8		GRY-ORN	LED return from GI Board 20G [Pop Bumpers], J100-2
J112-9		GRY	+7.5V to GI Board 21B [Upper Flipper], J100-1
J112-10		GRY-YEL	LED return from GI Board 21B [Upper Flipper], J100-2
J112-11		GRY	+7.5V to GI Board 21R [Drone], J100-1
J112-12		GRY-GRN	LED return from GI Board 21R [Drone], J100-2
J112-13		GRY	+7.5V to GI Board 21G [Right Sling], J100-1
J112-14		GRY-BLU	LED return from GI Board 21G [Right Sling], J100-2
J112-15		GRY	+7.5V to GI Board 22B [Right Return #1 (upper)], J100-1
J112-16		GRY-VIO	LED return from GI Board 22B [Right Return #1 (upper)], J100-2



**J113 GI Control**

J113-1	Not Used
J113-2	Not Used
J113-3	Not Used
J113-4	Not Used
J113-5	Not Used
J113-6	Not Used
J113-7	Not Used
J113-8	Not Used
J113-9	Not Used
J113-10	Not Used
J113-11	Not Used
J113-12	Not Used
J113-13	Not Used
J113-14	Not Used
J113-15	Not Used
J113-16	Not Used

**J114 Auxiliary I/O**

J114-1	Not Used
J114-2	Not Used
J114-3	Not Used
J114-4	Not Used
J114-5	Not Used
J114-6	Not Used
J114-7	Not Used
J114-8	Not Used
J114-9	Not Used
J114-10	Not Used

**J115 Auxiliary I/O**

J115-1	Not Used
J115-2	Not Used
J115-3	Not Used
J115-4	Not Used
J115-5	Not Used
J115-6	Not Used

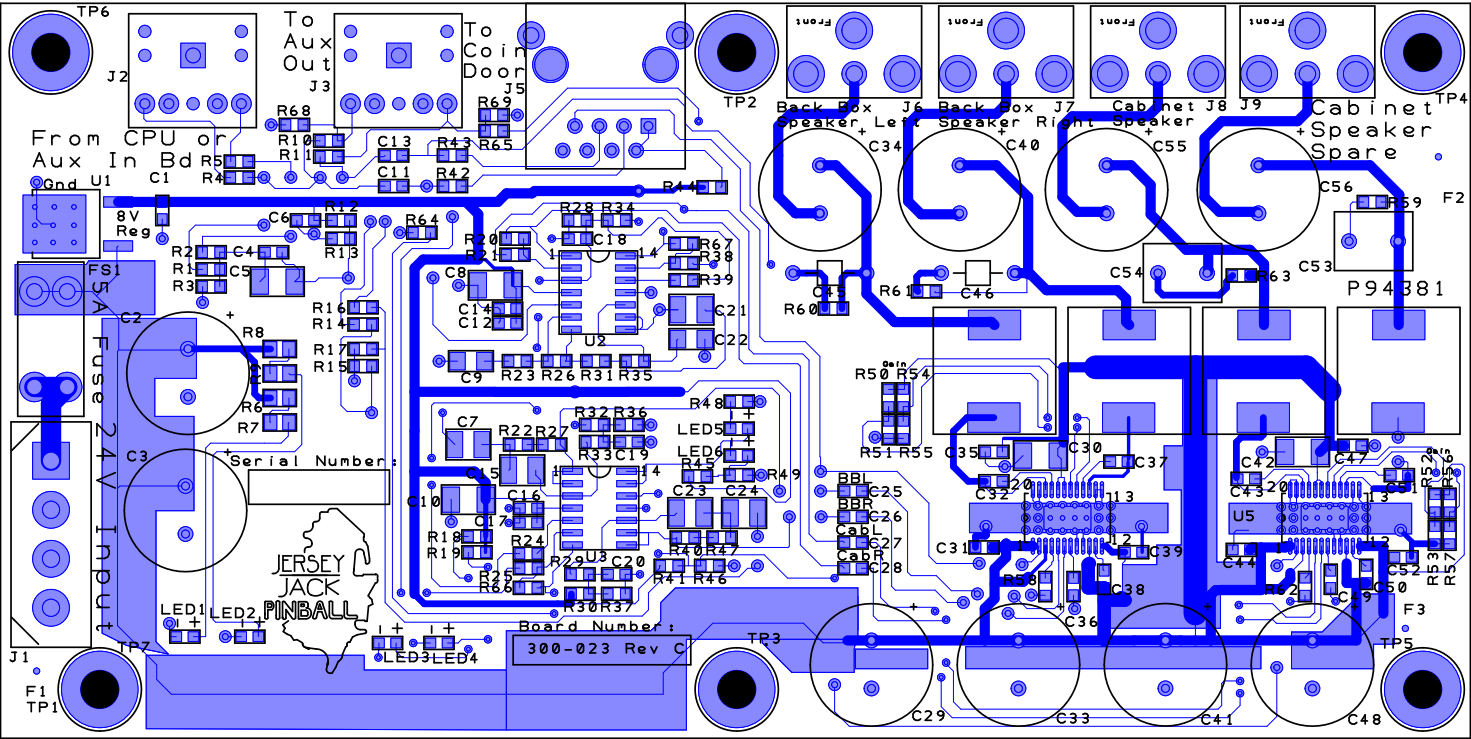
**J116 JTAG Interface**

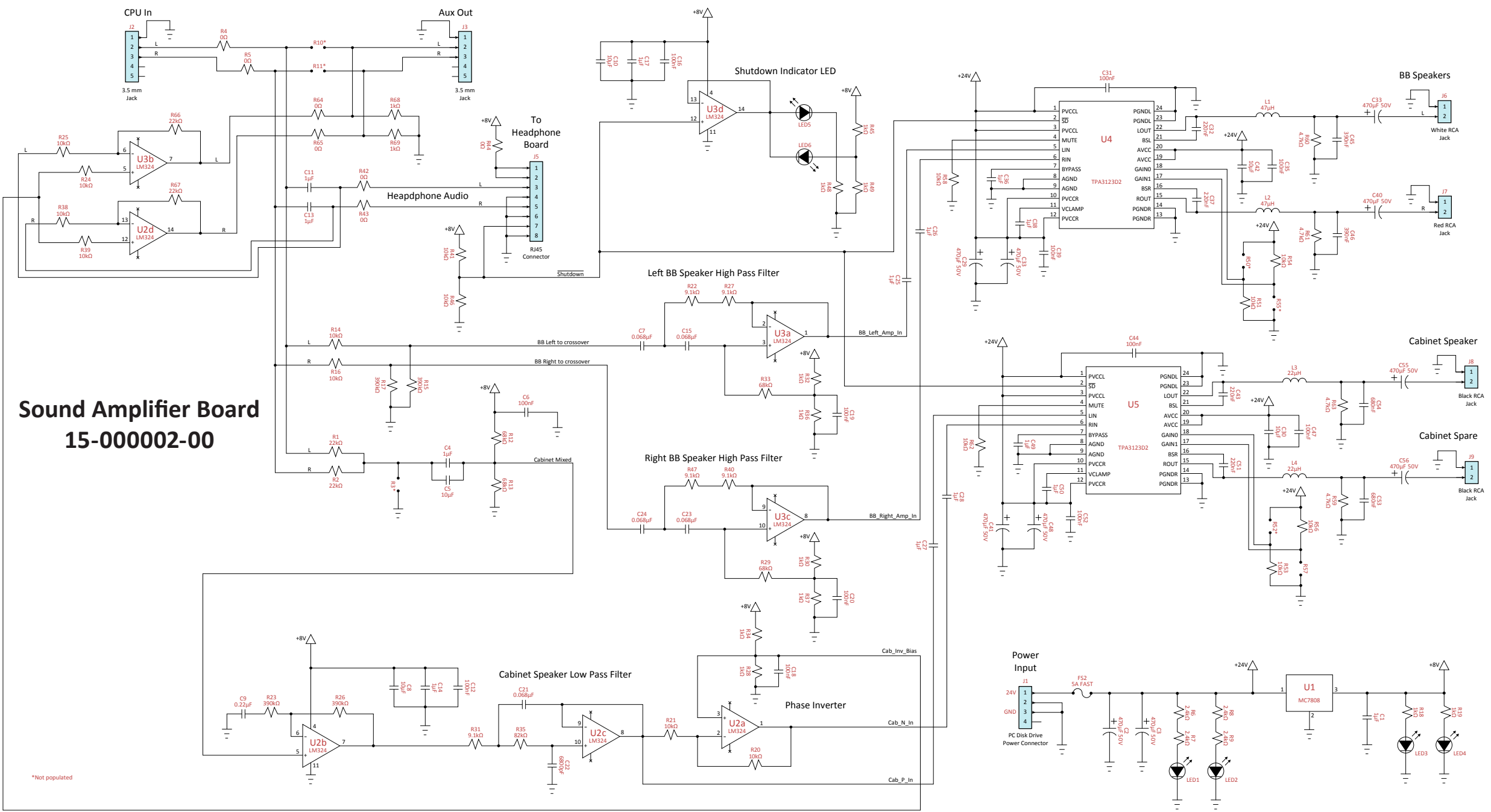
J116-1	Not Used
J116-2	Not Used
J116-3	Not Used
J116-4	Not Used
J116-5	Not Used
J116-6	Not Used
J116-7	Not Used
J116-8	Not Used
J116-9	Not Used
J116-10	Not Used

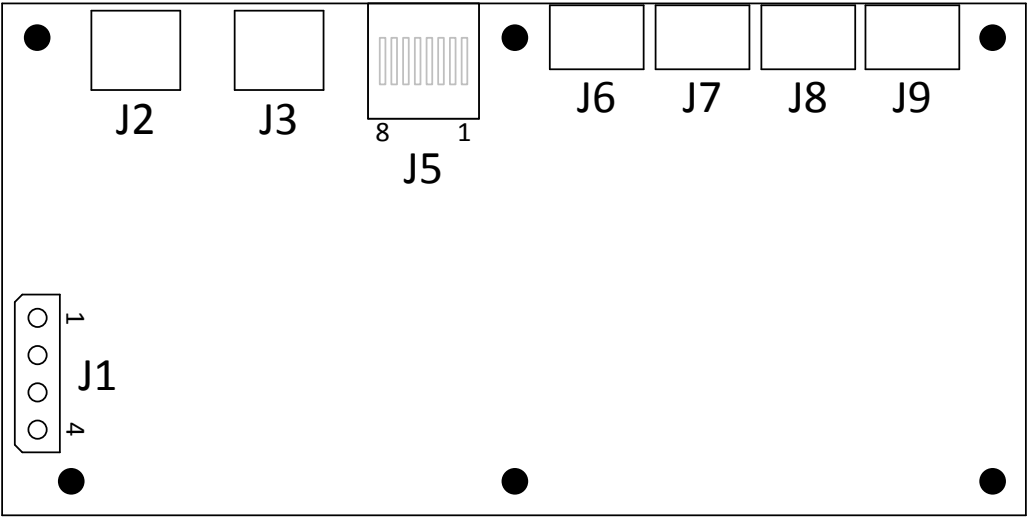
Sound Amplifier Board, 15-000002-00

Component(s)	Part Number	Description
C1, C4, C11, C13, C14, C17, C25-C28, C36, C38, C49, C50	103-105K-025	Capacitor, MLCC, 0603 SMT, 1μF, 25V, 10%
C2, C3, C29, C33, C34, C40, C41, C48, C55, C56	109-470M-050	Capacitor, Elect (Radial), 470μF, 50V, 20%
C5, C8, C10, C30, C42	102-106M-050	Capacitor, MLCC, 1210 SMT, 10μF, 50V, 20%
C6, C12, C16, C18-C20, C31, C35, C39, C44, C47, C52	103-104K-050	Capacitor, MLCC, 0603 SMT, 100nF, 50V, 10%
C7, C15, C21, C23, C24	102-683G-016	Capacitor, MLCC, 1210 SMT, 0.068μF, 16V, 20%
C9	102-224M-016	Capacitor, MLCC, 1206 SMT, 0.22μF, 16V, 20%
C22	102-682G-050	Capacitor, MLCC, 1206 SMT, 6800pF, 50V, 2%
C32, C37, C43, C51	103-224K-050	Capacitor, MLCC, 0603 SMT, 220nF, 50V, 10%
C45, C46	104-394J-100	Capacitor, Polyester, Leaded, 390nF, 100V, 5%
C53, C54	104-684J-050	Capacitor, Polyester, Leaded, 680nF, 50V, 5%
FS1	22-8006-00	Fuse Holder, Mini Blade, 20A, 500V
FS1	170-3205-SB	Fuse, Fast-Acting, 5A, 32V, Mini Blade
L1, L2	190-0000-0S	Inductor, SMD, 470μH, 2.5A, 1kHz
L3, L4	190-0001-0S	Inductor, SMD, 22μH, 3.6A, 1kHz
LED1-LED5	24-0009-0S	LED, 0603 SMD, YEL/GRN, 572nm
LED6	24-0010-0S	LED, 0603 SMD, YEL, 589nm
R1, R2, R66, R67	122-022K-102	Resistor, 0603 SMT, 22kΩ, 0.1W, 5%
R4, R5, R42-R44, R64, R65	122-0000-100	Resistor, 0603 SMT, 0Ω, 0.1W
R6-R9	122-02K4-122	Resistor, 0603 SMT, 2.4kΩ, 0.125W, 5%
R12, R13, R29, R33	122-068K-102	Resistor, 0603 SMT, 68kΩ, 0.1W, 1%
R14, R16, R20, R21, R24, R25, R38, R39, R41, R46, R51, R53, R54, R56, R58, R62	122-010K-102	Resistor, 0603 SMT, 10kΩ, 0.1W, 1%
R15, R17, R23, R26	122-390K-102	Resistor, 0603 SMT, 390kΩ, 0.1W, 1%
R18, R19, R28, R30, R32, R34, R36, R37, R45, R48, R49, R68, R69	122-001K-102	Resistor, 0603 SMT, 1kΩ, 0.1W, 1%

Component(s)	Part Number	Description
R22, R27, R31, R40, R47	122-09K1-102	Resistor, 0603 SMT, 9.1kΩ, 0.1W, 1%
R35	122-082K-102	Resistor, 0603 SMT, 82kΩ, 0.1W, 1%
R59-R61, R63	122-04K7-102	Resistor, 0603 SMT, 4.7kΩ, 0.1W, 1%
R3, R10, R11, R50, R52, R55, R57		Not Populated
U1	142-0002-0S	Voltage Regulator, MC7808, TO-252-3 SMT, 8V, 1A
U2, U3	140-0003-0S	Op Amp, Quad, LM324, SO-14 SMT
U4, U5	140-0004-0S	Audio Amp, Stereo, TPA3123, HTSSOP-24 SMT
J1	31-2502-04	Connector Header, 4-pin, Power
J2	30-2506-05	Jack Header, 3.5mm, Rt Angle, Green
J3	30-2506-12	Jack Header, 3.5mm, Rt Angle, Pink
J5	30-2508-00	Jack Header, RJ45 (Ethernet)
J6	30-2507-09	Jack Header, RCA, Right Angle, White
J7	30-2507-02	Jack Header, RCA, Right Angle, Red
J8, J9	30-2507-00	Jack Header, RCA, Right Angle, Black







Sound Amplifier Board, 15-000002-00  
Connector Pin-outs

**J1 DC Power Input**

J1-1	BRN	+24VDC from Primary ATX Pwr Supply
J1-2	Not Used	
J1-3	BLK	Ground from Primary ATX Pwr Supply
J1-4	Not Used	

**J2 Audio Input**

3.5mm audio cable from CPU Board (audio out),

**J3 Auxiliary Output**

Not Used

**J5 Headphone/Volume Control Connection**

Not Used

**J6 Backbox Speaker Connection (Left)**

RCA cable to left backbox speaker

**J7 Backbox Speaker Connection (Right)**

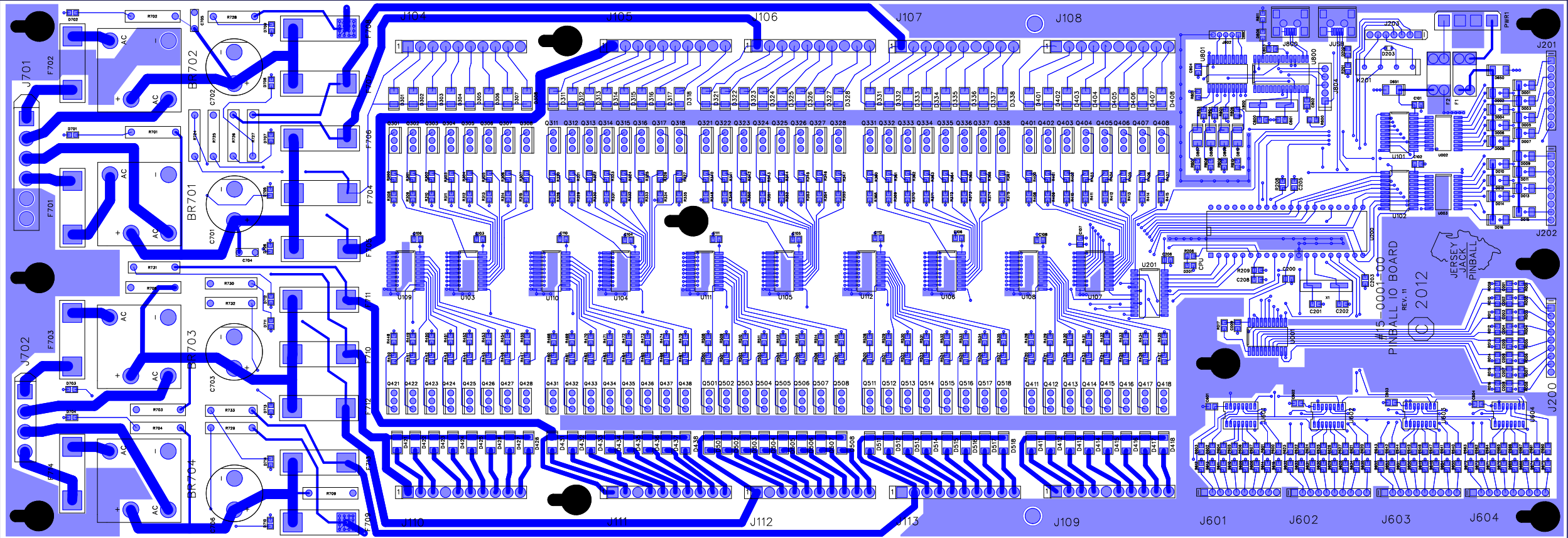
RCA cable to right backbox speaker

**J8 Cabinet Speaker Connection**

RCA cable to cabinet subwoofer speaker

**J9 Cabinet Speaker Spare**

Not Used



I/O PCB Assy, DI  
15-004001-03

Component(s)	Part Number	Description
BARE PCB	15-0001-00	I/O Board
BR701-BR704	150-0001-0T	Bridge Rectifier, Wire Leads, 600V, 35A
C001-C008	100-471J-050	Capacitor, MLCC, 0805 SMT, 470pF, 50V, 5%
C009, C101-C112, C200, C205, C206, C208, C601-C604	100-104K-050	Capacitor, MLCC, 0805 SMT, 100nF, 50V, 10%
C201, C202	100-220J-050	Capacitor, MLCC, 0805 SMT, 22pF, 50V, 5%
C203, C802	100-224K-050	Capacitor, MLCC, 0805 SMT, 220nF, 50V, 10%
C701, C702	109-3K3M-100	Capacitor, Elect (Radial), 3300μF, 100V, 20%
C703, C706	109-15KM-035	Capacitor, Elect (Radial), 15000μF, 35V, 20%

Component(s)	Part Number	Description
C704-C705	101-104K-630	Capacitor, MLCC, Leaded, 100nF, 630V, 10%
C800-C804		Not Populated
D203	110-1000-0S	Diode, 1N4148, SMT, 75V, 300mA
D301-D308, D311-D318, D321-D328, D331-D338, D401-D408, D411-D418, D421-D428, D431-D438, D501-D508, D511-D518, D001-D016, D650, D651	110-5001-0S	Diode, RS1G, SMT, 400V, 1A, 150ns



Component(s)	Part Number	Description
D701-D714, D200, D203	24-0014-0S	LED, 0805 SMD, RED, 621nm
D806-D810		Not Populated
F701, F702	170-0110-SM	Fuse, Time Delay, 10A, 250V, 5mm x 20mm
F703, F706, F707	170-0163-SM	Fuse, Time Delay, 6.3A, 250V, 5mm x 20mm
F704, F705, F708	170-0105-SM	Fuse, Time Delay, 5A, 250V, 5mm x 20mm
F710, F711, F712, F714	170-0104-SM	Fuse, Time Delay, 4A, 250V, 5mm x 20mm
F709	170-0103-SM	Fuse, Time Delay, 3A, 250V, 5mm x 20mm
F713	170-0102-SM	Fuse, Time Delay, 2A, 250V, 5mm x 20mm
F1, F2	170-3201-FB	Fuse, Fast-Acting, 1A, 32V, Mini Blade
F701-F714	22-8007-00	Fuse Holder, 5mm x 20mm, SMD, 250V, 10A
F1,F2	22-8006-00	Fuse Holder, Mini Blade, 500V, 20A
K201	160-0001-0T	Relay, Reed, SPST, Normally Open, 10W, 0.5A
Q301-Q308, Q311-Q318, Q321-Q328, Q331-Q338, Q401-Q408, Q411-Q418, Q421-Q428, Q431-Q438, Q501-Q508, Q511-Q518	130-0000-0T	MOSFET, IRL540, N-Ch, TO-220AB, 100V, 36A
R201, R206, R300-R307, R320-R327, R340-R347, R360-R367, R400-R407, R420-R427, R440-R447, R460-R467, R400, R500-R507, R520-R527, R600-R607, R620-R627, R640-R647, R660-R667	120-0220-254	Resistor, 0805 SMT, 220Ω, 0.25W, 5%
R209, R802, R009-R017 R308-R315, R328-R335, R348-R355, R368-R375, R408-R415, R412-R415, R428-R435, R448-R455, R468-R475, R508-R515, R528-R535, R608-R615, R628-R635, R648-R655, R668-R675	120-04K7-254	Resistor, 0805 SMT, 4.7kΩ, 0.25W, 5%
	120-04K7-254	Resistor, 0805 SMT, 10kΩ, 0.25W, 5%

Component(s)	Part Number	Description
R701, R702, R724-R728	121-06K8-2H4	Resistor, Leaded, 6.8kΩ, 2W, 5%
R703, R730-R732	121-02K7-2H4	Resistor, Leaded, 2.7kΩ, 2W, 5%
R704, R729, R733	121-01K2-2H4	Resistor, Leaded, 1.2kΩ, 2W, 5%
R708, R709	121-0470-2H4	Resistor, Leaded, 470Ω, 2W, 5%
R001-R008	120-0100-254	Resistor, 0805 SMT, 100Ω, 0.25W, 5%
R208, R800, R801, R803-R811		Not Populated
U001	141-0008-0S	Octal Bus XCVRs w/3-State Outputs, 74HC245, SOIC-20 SMT
U002, U003	141-0009-0S	Darlington Transistor Array, ULN2803A, SOIC-18 SMT, NPN
U101-U112	141-0010-0S	Octal D-Type Flip-Flops w/3-State Outputs, 74HCT574, SOIC-20 SMT
U200	141-0011-0T	Microcontroller, 8-Bit, USB, 48MHz, PIC18F4550, PDIP-40
U200	31-3000-0T	DIP Socket, 40-pin, 2.54mm Pitch
U201	141-0012-0S	4- to 16-Line Decoder, CMOS, CD74HCT154, SOIC-24 SMT
U601-U604	141-0013-0S	Shift Register, Serial/Parallel to Serial, 8-Bit, 74HCT165, SOIC-16 SMT
U800, U801		Not Populated
X1	160-0002-0S	Crystal, 8MHz, ATS08ASM-1E, SMT, 20pF, 30PPM
X800		Not Populated
J104-J113	31-2505-10	Header, Male, 10-pin, 3.96mm
J200, J201, J202	31-2504-09	Header, Male, 9-pin, 2.54mm
J203	31-2501-07	Header, Male, 7-pin, Rt Angle, 2.54mm
J601-J604	31-2504-10	Header, Male, 10-pin, 2.54mm
J701	31-2506-06	Header, Male, 6-pin, .250" Centerline
J702	31-2506-04	Header, Male, 4-pin, .250" Centerline
JUSB		Not Populated
J800, J802, J804		Not Populated
PWR1	31-2502-04	Connector Header, Male, 4-pin, Power

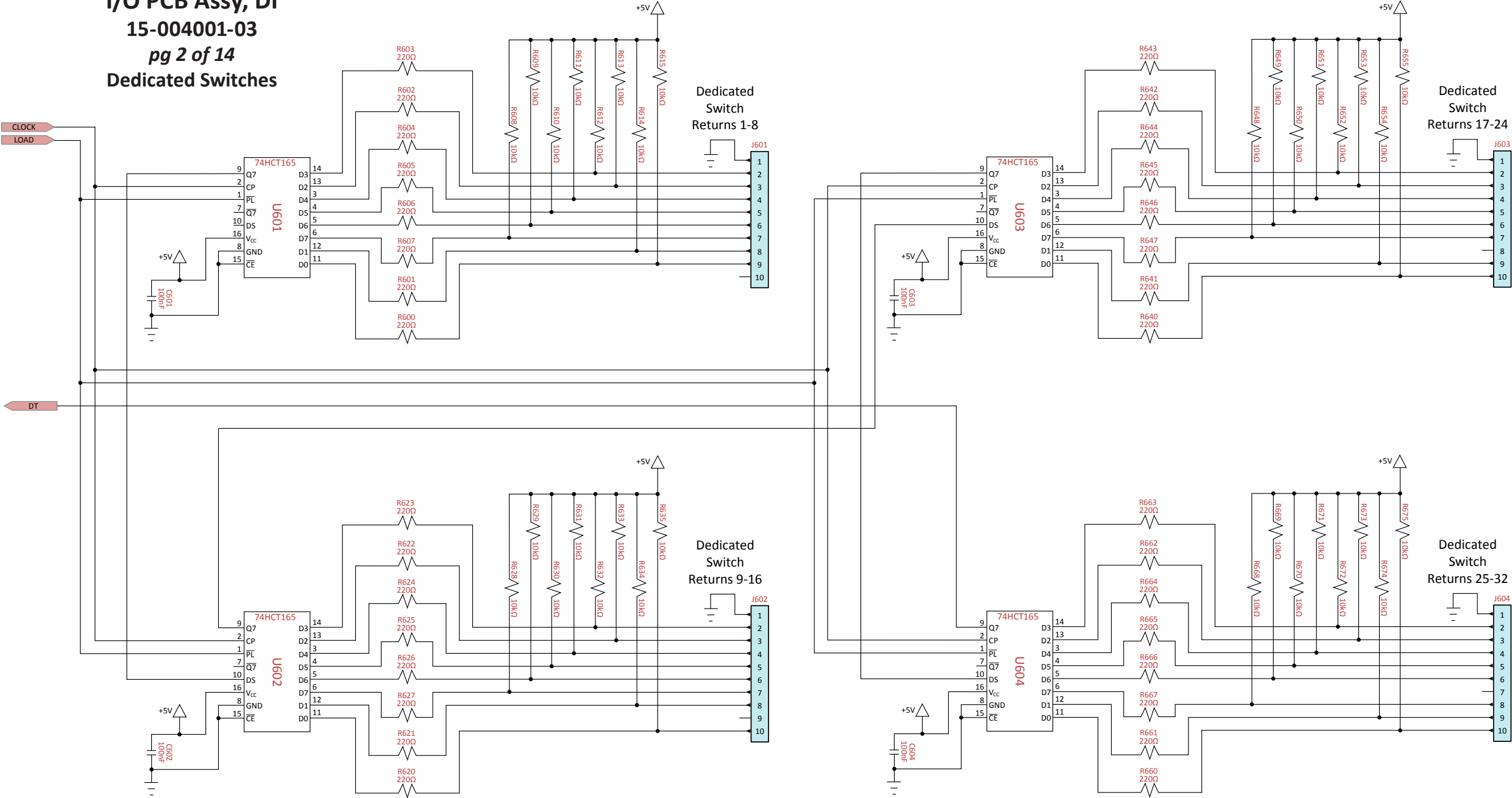


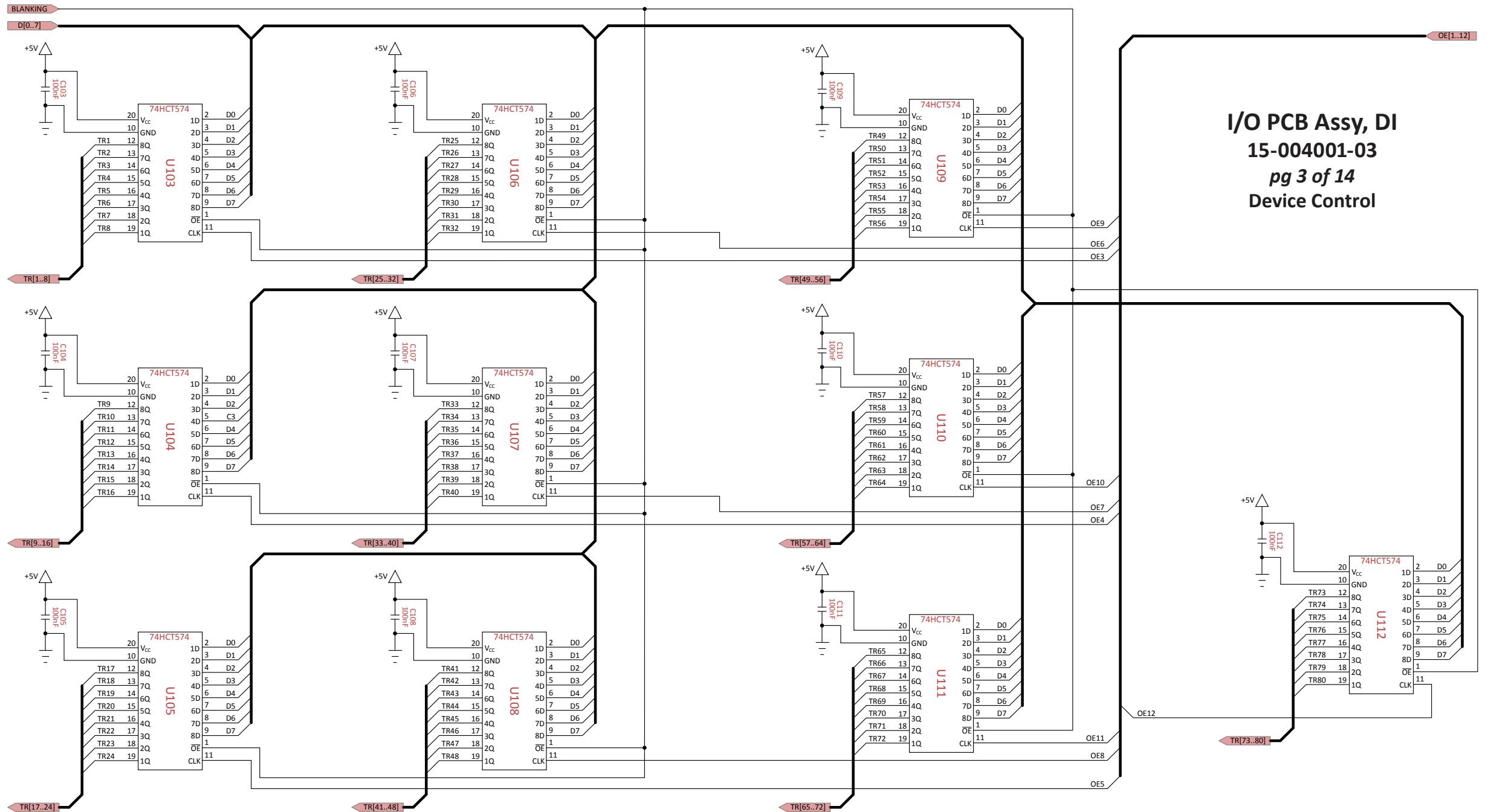
I/O PCB Assy, DI

15-004001-03

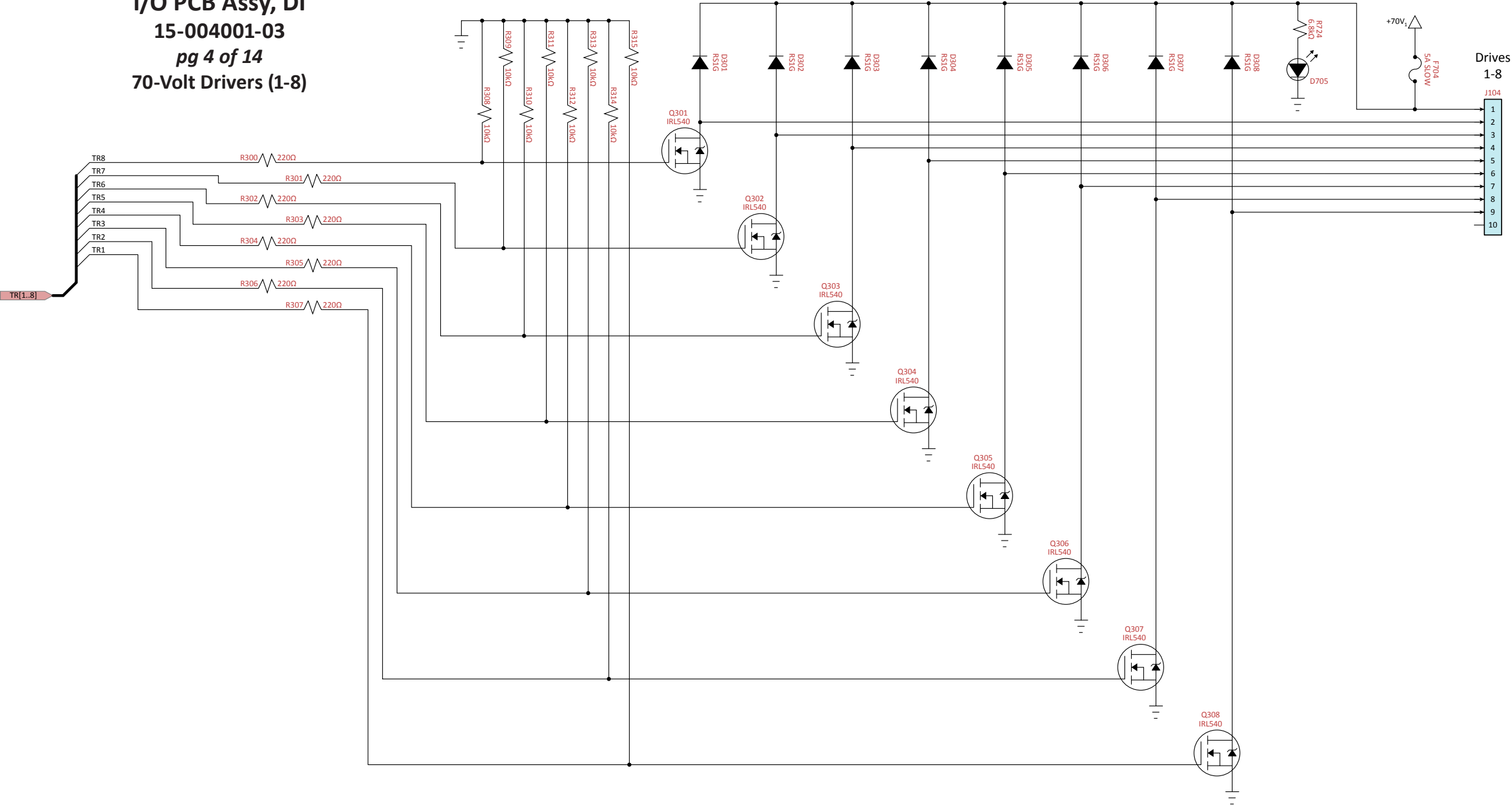
pg 2 of 14

Dedicated Switches





I/O PCB Assy, DI  
15-004001-03  
pg 4 of 14  
70-Volt Drivers (1-8)





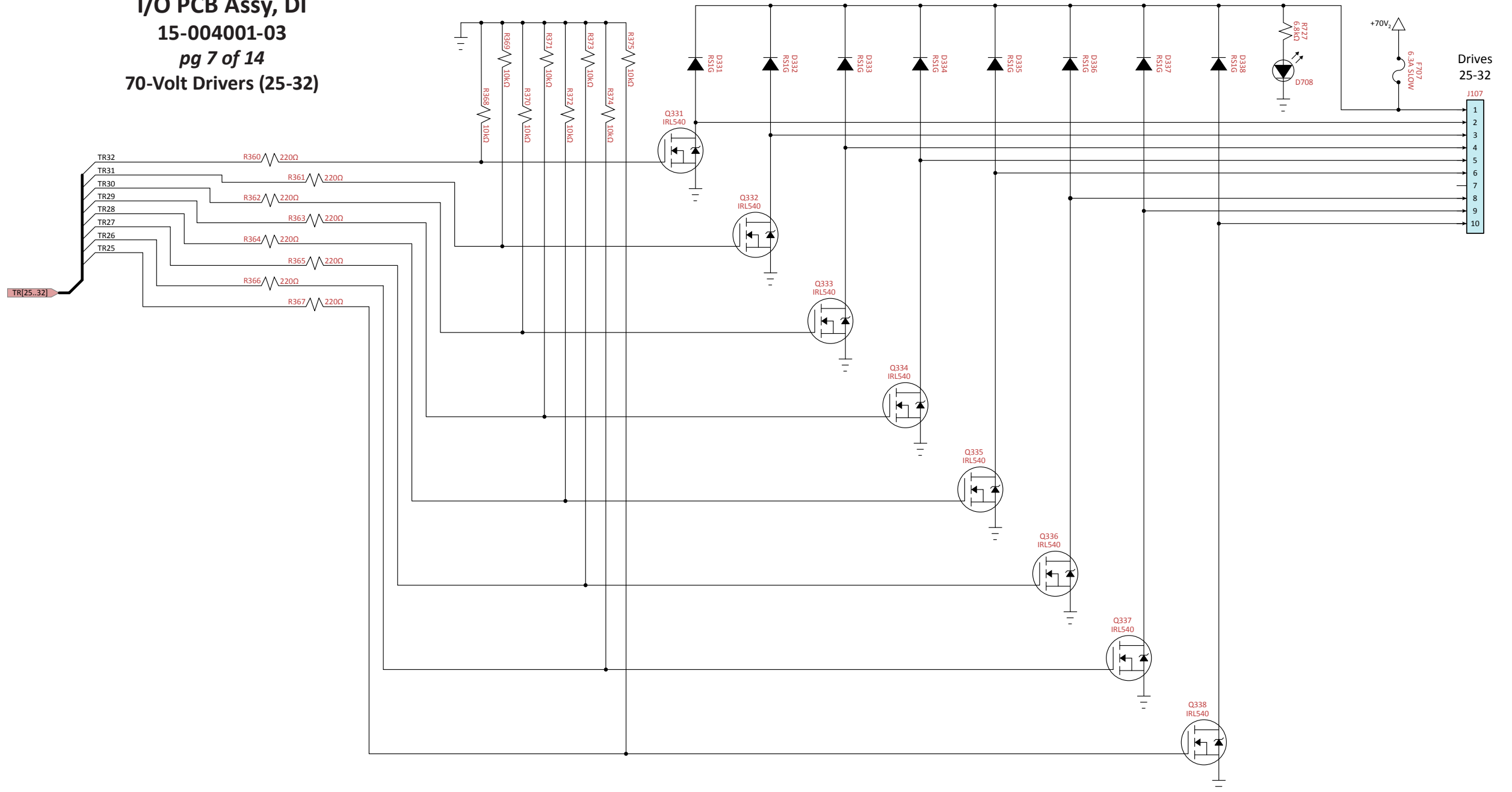
**15-004001-03**  
*pg 5 of 14*  
**70-Volt Drivers (9-16)**

**pg 5 of 14**

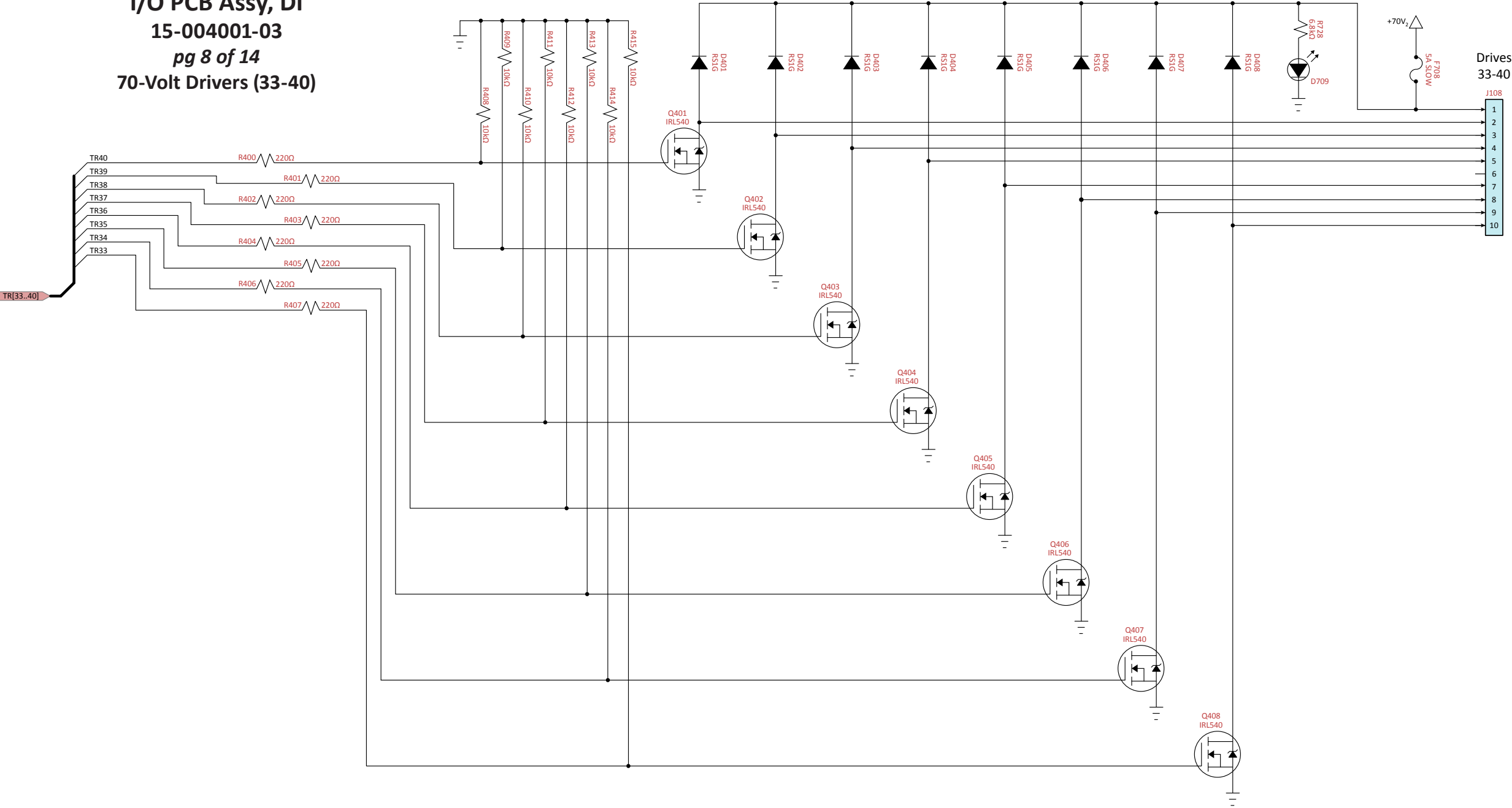
The schematic shows a 16-channel relay driver circuit. A +70V supply is connected through a 5A SLOW fuse (F705) and a 6.8kΩ resistor (R725) to a common ground. The circuit consists of 16 MOSFETs (Q311-Q318, IRL540) and 16 diodes (D311-D318, RS1G). Each MOSFET is driven by a signal from a 16-pin connector labeled 'Drives 9-16'. The MOSFETs are connected to a common ground, and the diodes are connected to the MOSFET drains. The resistors (R328-R335) are connected to the MOSFET gates and the common ground. The MOSFETs are labeled Q311, Q312, Q313, Q314, Q315, Q316, Q317, and Q318. The diodes are labeled D311, D312, D313, D314, D315, D316, D317, and D318. The resistors are labeled R328, R329, R330, R331, R332, R333, R334, and R335.



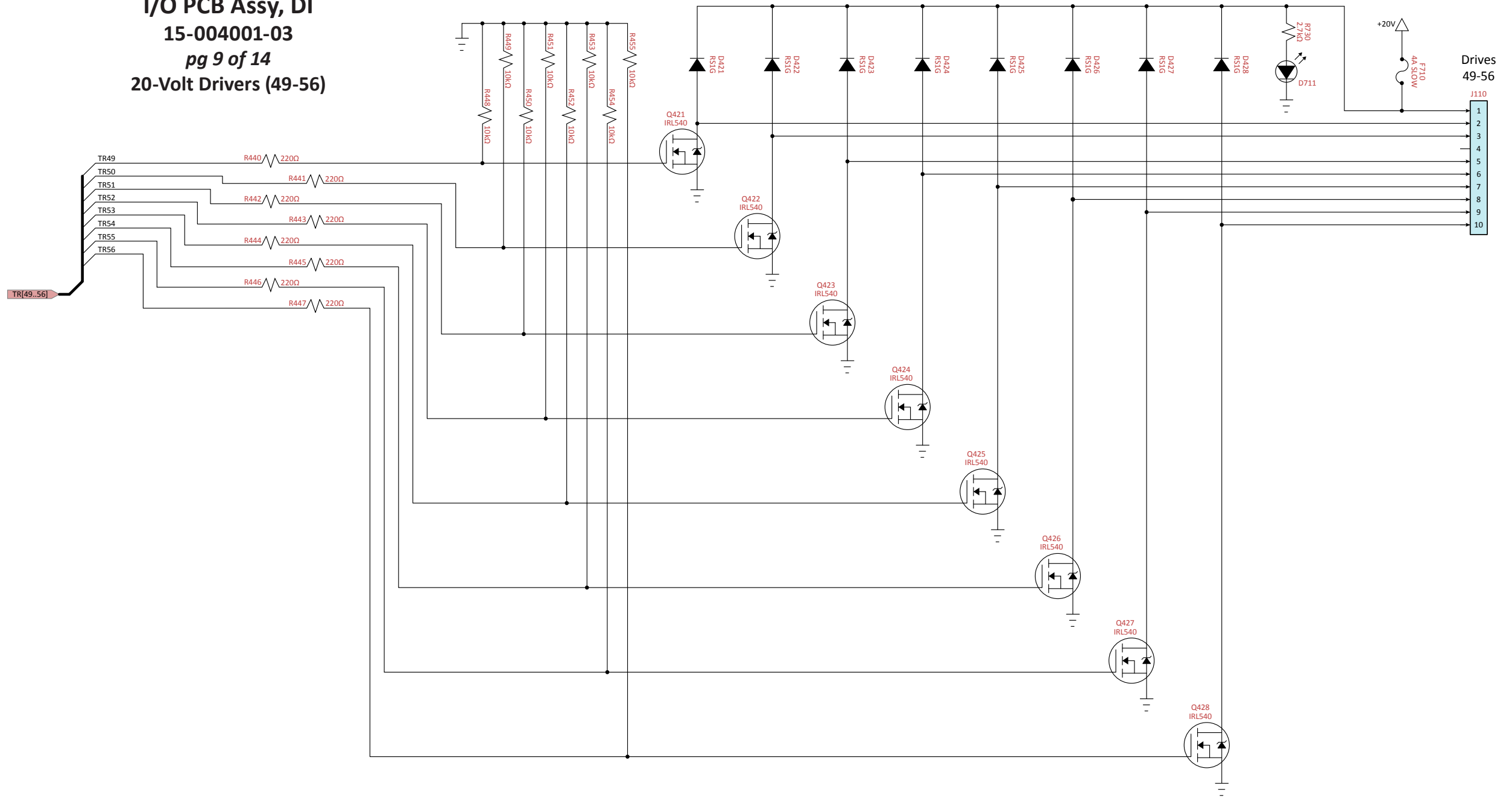
**I/O PCB Assy, DI**  
**15-004001-03**  
*pg 7 of 14*  
**70-Volt Drivers (25-32)**



I/O PCB Assy, DI  
15-004001-03  
pg 8 of 14  
70-Volt Drivers (33-40)

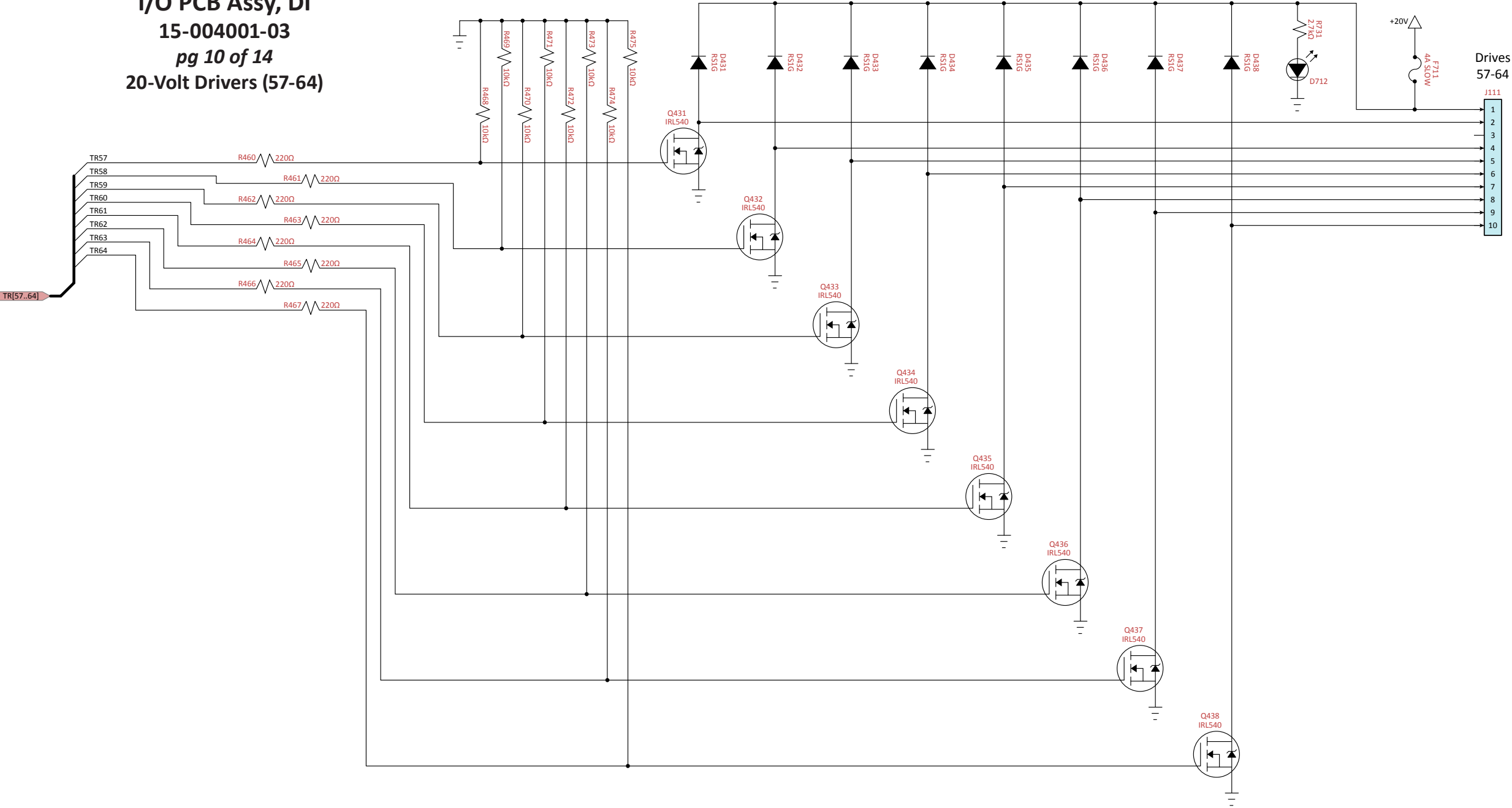


**I/O PCB Assy, DI**  
**15-004001-03**  
*pg 9 of 14*  
**20-Volt Drivers (49-56)**

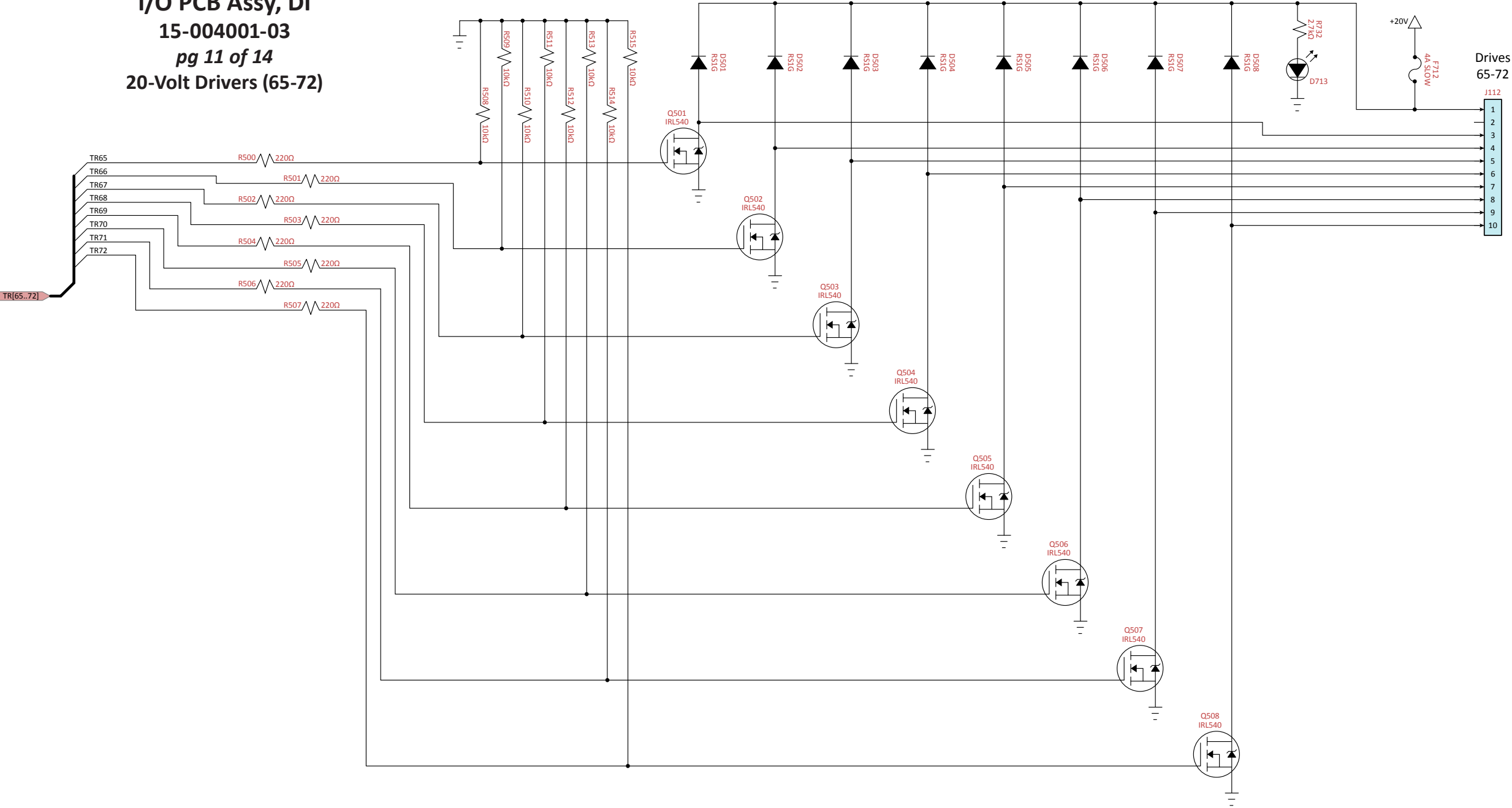




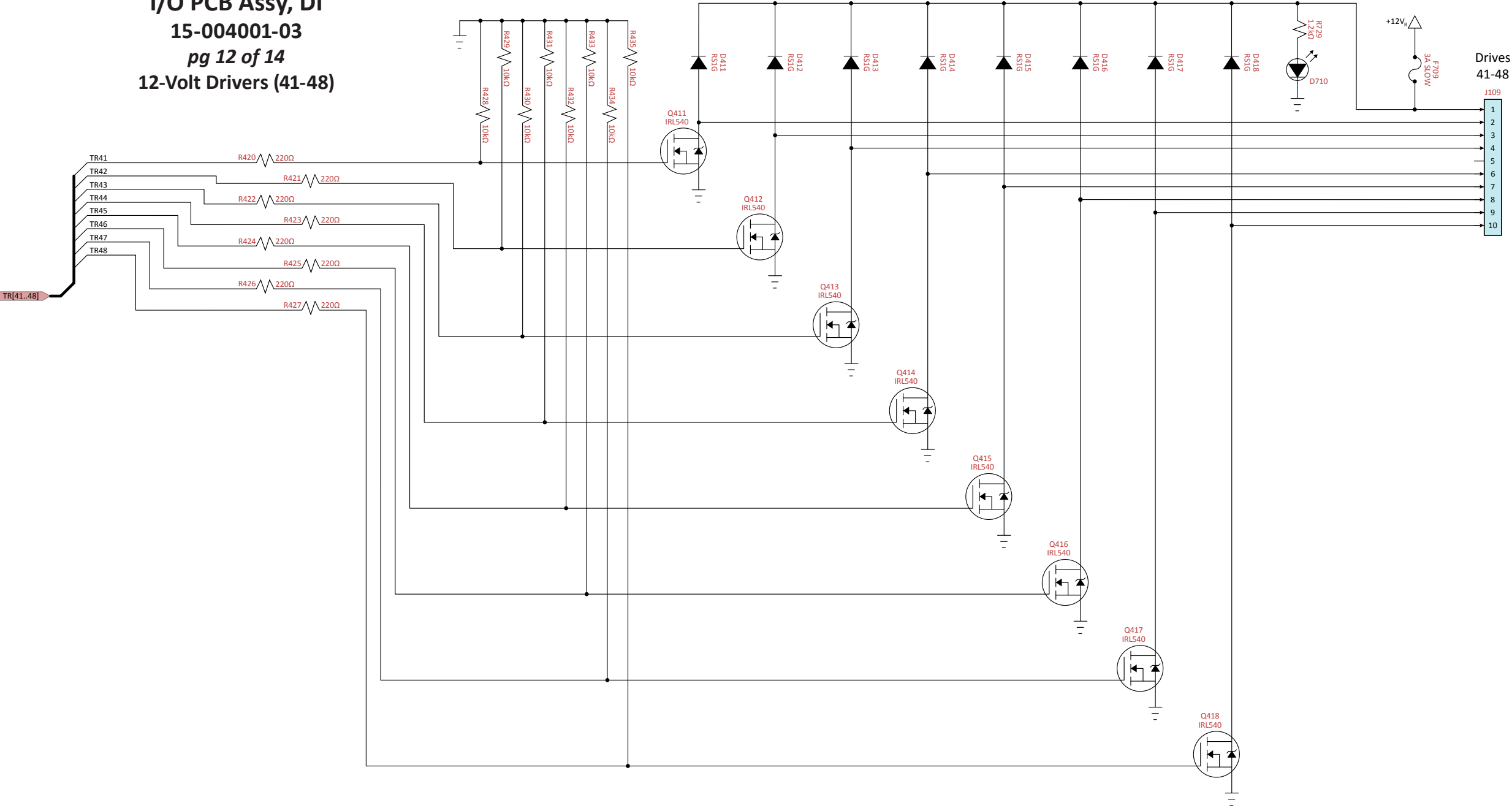
I/O PCB Assy, DI  
15-004001-03  
pg 10 of 14  
20-Volt Drivers (57-64)



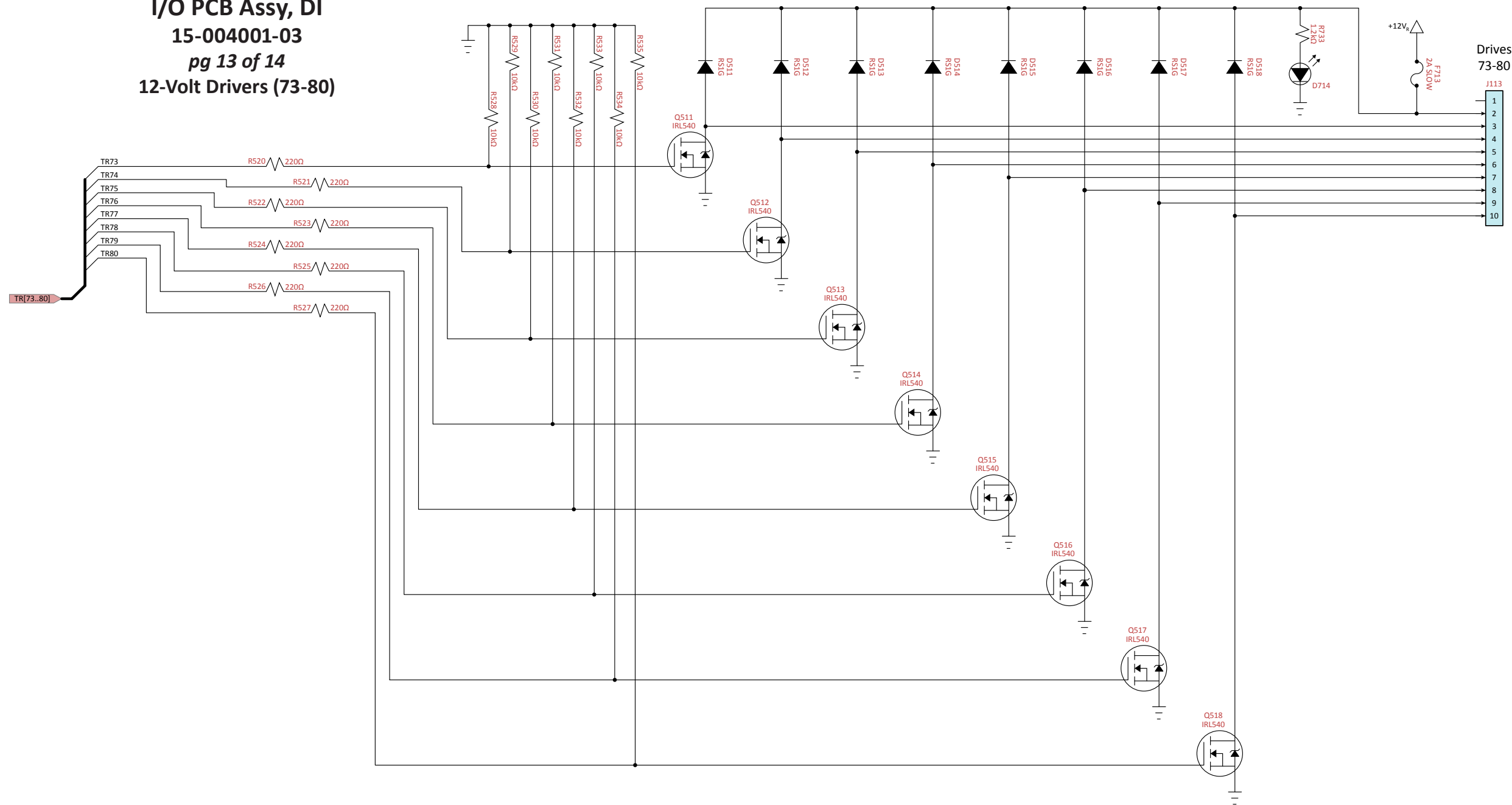
I/O PCB Assy, DI  
15-004001-03  
pg 11 of 14  
20-Volt Drivers (65-72)



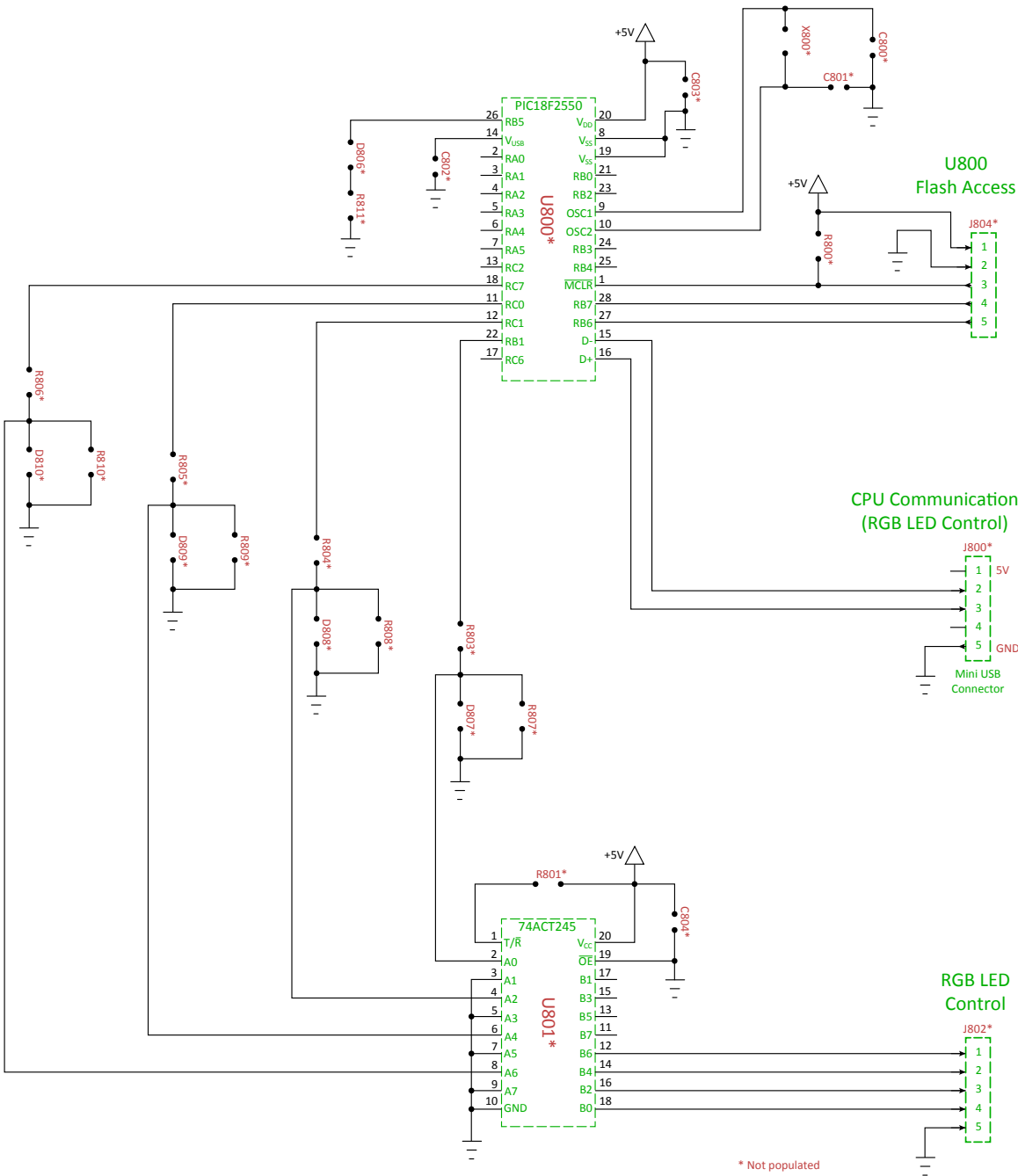
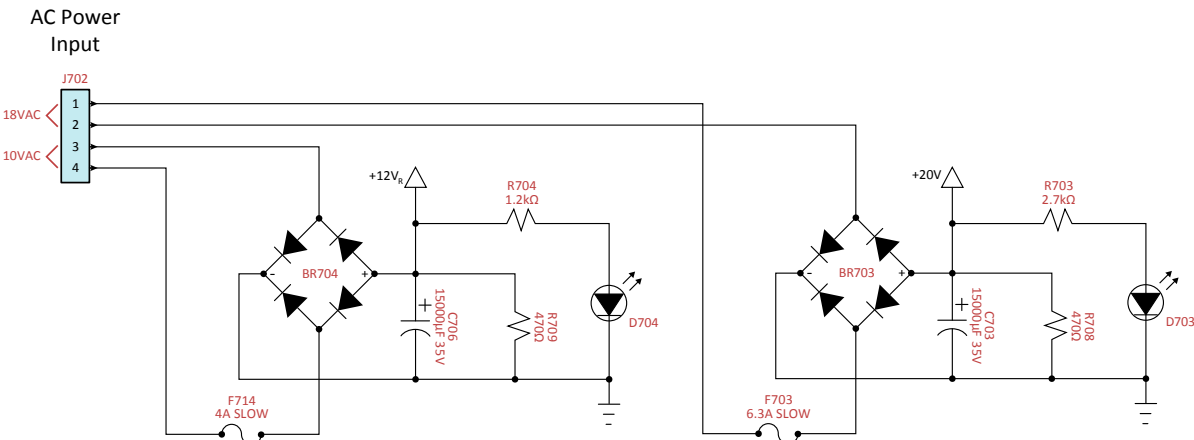
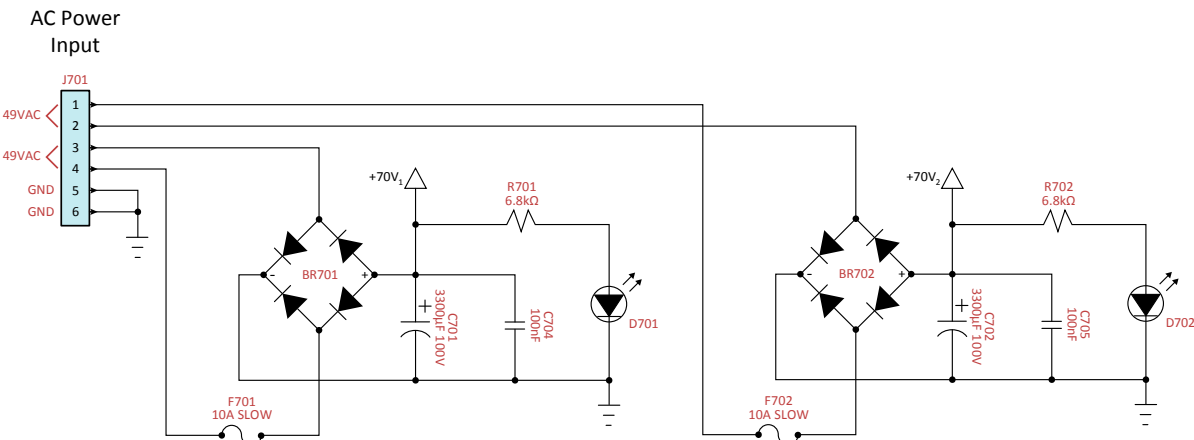
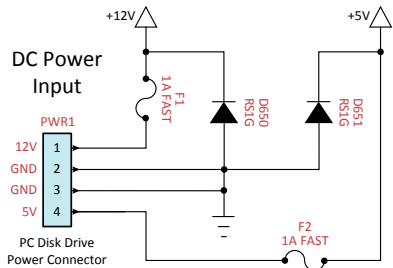
I/O PCB Assy, DI  
15-004001-03  
pg 12 of 14  
12-Volt Drivers (41-48)

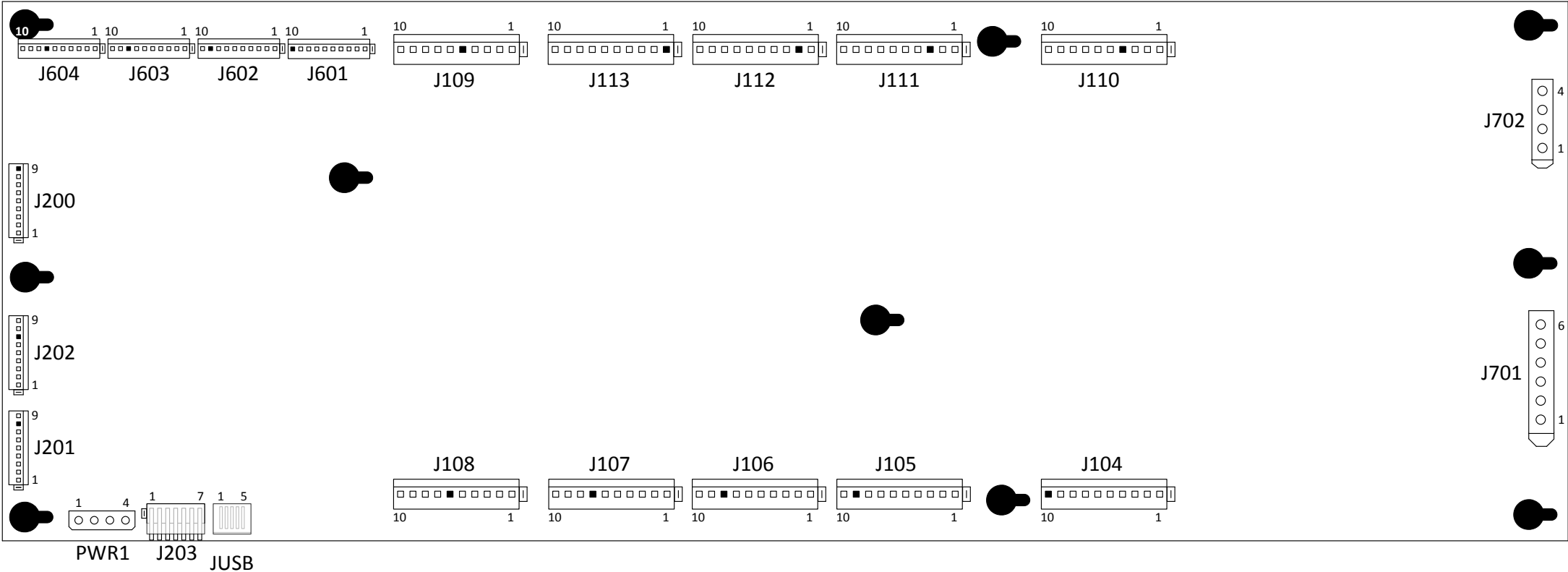


I/O PCB Assy, DI  
15-004001-03  
pg 13 of 14  
12-Volt Drivers (73-80)



I/O PCB Assy, DI  
15-004001-03  
pg 14 of 14  
Power Input/Rectification





I/O PCB Assy, DI  
15-004001-03  
Connector Pin-outs

J104 70-Volt Coil Drives (1-8)

J104-1	BRN	+70VDC supply to coils below
J104-2	BRN-VIO	Not Used
J104-3	BRN-BLU	Coil drive 7 [Knocker]
J104-4	BRN-GRN	Coil drive 6 [Phone Scoop Eject]
J104-5	BRN-YEL	Coil drive 5 [Skill Shot Kicker]
J104-6	BRN-ORN	Coil drive 4 [Theater Magnet]
J104-7	BRN-RED	Coil drive 3 [Bottom Pop Bumper]
J104-8	BRN-GRY	Coil drive 2 [Right Pop Bumper]
J104-9	BRN-BLK	Coil drive 1 [Left Pop Bumper]
J104-10	Key	

J105 70-Volt Coil Drives (9-16)

J105-1	RED	+70VDC supply to coils below
J105-2	RED-VIO	Not Used
J105-3	RED-BLU	Not Used
J105-4	RED-GRN	Coil drive 14 [Upper Right Flipper Hold]
J105-5	RED-YEL	Coil drive 13 [Upper Right Flipper Power]
J105-6	RED-ORN	Coil drive 12 [Right Flipper Hold]
J105-7	RED-GRY	Coil drive 11 [Right Flipper Power]
J105-8	RED-BRN	Coil drive 10 [Left Flipper Hold]
J105-9	Key	
J105-10	RED-BLK	Coil drive 9 [Left Flipper Power]

J106 70-Volt Coil Drives (17-24)

J106-1	ORN	+70VDC supply to coils below
J106-2	ORN-VIO	Not Used
J106-3	ORN-BLU	Not Used
J106-4	ORN-GRN	Coil drive 22 [5-Ball Trough VUK]
J106-5	ORN-YEL	Coil drive 21 [Ball Auto-Launch]
J106-6	ORN-GRY	Not Used
J106-7	ORN-RED	Coil drive 19 [Kickback]
J106-8	Key	
J106-9	ORN-BRN	Not Used
J106-10	ORN-BLK	Coil drive 17 [Drone Magnet]



**J107 70-Volt Coil Drives (25-32)**

J107-1	TAN	+70VDC supply to coils/magnets below
J107-2	TAN-VIO	Not Used
J107-3	TAN-BLU	Not Used
J107-4	TAN-GRN	Not Used
J107-5	TAN-YEL	Not Used
J107-6	TAN-ORN	Coil drive 28 [Left Magnet]
J107-7	Key	
J107-8	TAN-RED	Coil drive 27 [Right Magnet]
J107-9	TAN-BRN	Coil drive 26 [Upper Magnet]
J107-10	TAN-BLK	Not Used

**J108 70-Volt Coil Drives (33-40)**

J108-1	PNK	+70VDC supply to coils below
J108-2	PNK-VIO	Not Used
J108-3	PNK-BLU	Not Used
J108-4	PNK-GRN	Not Used
J108-5	PNK-YEL	Not Used
J108-6	Key	
J108-7	PNK-ORN	Coil drive 36 [Bob Trap Door Open]
J108-8	PNK-RED	Coil drive 35 [Bob Trap Door Latch Release]
J108-9	PNK-BRN	Not Used
J108-10	PNK-BLK	Not Used

**J109 12-Volt Coil Drives (41-48)**

J109-1	YEL	+12VDC supply to motors/lights below
J109-2	YEL-BLK	Coil drive 41 [Moving Target Motor]
J109-3	YEL-BRN	Coil drive 42 [Moving Target Relay]
J109-4	YEL-RED	Not Used
J109-5	Key	
J109-6	YEL-ORN	Coil drive 44 [Betty Spotlight]
J109-7	YEL-GRY	Coil drive 45 [Betty Diverter Motor]
J109-8	YEL-GRN	Coil drive 46 [Top Drone Motor]
J109-9	YEL-BLU	Coil drive 47 [Center Drone Motor]
J109-10	YEL-VIO	Coil drive 48 [Bottom Drone Motor]

**J110 20-Volt Coil Drives (49-56)**

J110-1	PLM	+20VDC supply to coils/magnets below
J110-2	PLM-BLK	Not Used
J110-3	PLM-BRN	Not Used
J110-4	Key	
J110-5	PLM-RED	Not Used
J110-6	PLM-ORN	Not Used
J110-7	PLM-YEL	Not Used
J110-8	PLM-GRN	Not Used
J110-9	PLM-BLU	Not Used
J110-10	PLM-GRY	Not Used

**J111 20-Volt Coil Drives (57-64)**

J111-1	BLU	+20VDC supply to coils below
J111-2	BLU-BLK	Coil drive 57 [Ramp Ball Lock Release]
J111-3	Key	
J111-4	BLU-BRN	Coil drive 58 [Left Slingshot]
J111-5	BLU-RED	Coil drive 59 [Right Slingshot]
J111-6	BLU-ORN	Not Used
J111-7	BLU-YEL	Not Used
J111-8	BLU-GRN	Not Used
J111-9	BLU-GRY	Not Used
J111-10	BLU-VIO	Not Used

**J112 20-Volt Coil Drives (65-72)**

J112-1	VIO	+20VDC supply to coils below
J112-2	Key	
J112-3	VIO-BLK	Not Used
J112-4	VIO-BRN	Not Used
J112-5	VIO-RED	Not Used
J112-6	VIO-ORN	Not Used
J112-7	VIO-YEL	Not Used
J112-8	VIO-GRN	Not Used
J112-9	VIO-BLU	Not Used
J112-10	VIO-GRY	Not Used

**J113 12-Volt Coil Drives (73-80)**

J113-1	Key	
J113-2	LT BLU	+12VDC supply to light below
J113-3	LT BLU-BLK	Coil drive 73 [Shaker Motor]
J113-4	LT BLU-BRN	Not Used
J113-5	LT BLU-RED	Coil drive 75 [Redemption Ticket Motor]
J113-6	LT BLU-ORN	Not Used
J113-7	LT BLU-YEL	Not Used
J113-8	LT BLU-GRN	Not Used
J113-9	LT BLU-GRY	Coil drive 79 [Start Button Light]
J113-10	LT BLU-VIO	Coil drive 80 [Flash Bulb Topper]

**J200 Matrixed Switches, Rows**

J200-1	WHT-BLK	Row 1 to playfield switches
J200-2	WHT-BRN	Row 2 to playfield switches
J200-3	WHT-RED	Row 3 to playfield switches
J200-4	WHT-ORN	Row 4 to playfield switches
J200-5	WHT-YEL	Row 5 to playfield switches
J200-6	WHT-GRN	Row 6 to playfield switches
J200-7	WHT-BLU	Row 7 to playfield switches
J200-8	WHT-VIO	Row 8 to playfield switches
J200-9	Key	

**J201 Matrixed Switches, Columns (1-8)**

J201-1	GRN-BLK	Column 1 to playfield switches
J201-2	GRN-BRN	Column 2 to playfield switches
J201-3	GRN-RED	Column 3 to playfield switches
J201-4	GRN-ORN	Column 4 to playfield switches
J201-5	GRN-YEL	Column 5 to playfield switches
J201-6	GRN-GRY	Column 6 to playfield switches
J201-7	GRN-BLU	Column 7 to playfield switches
J201-8	Key	
J201-9	GRN-VIO	Column 8 to playfield switches

**J202 Matrixed Switches, Columns (9-16)**

J202-1	GRY-BLK	Not Used
J202-2	GRY-BRN	Not Used
J202-3	GRY-RED	Not Used
J202-4	GRY-ORN	Not Used
J202-5	GRY-YEL	Not Used
J202-6	GRY-GRN	Not Used
J202-7	Key	
J202-8	GRY-BLU	Not Used
J202-9	GRY-VIO	Not Used

**J203 Serial Communications**

J203-1	Not Used
J203-2	Not Used
J203-3	Not Used
J203-4	Not Used
J203-5	Not Used
J203-6	Not Used
J203-7	Not Used

**J601 Dedicated Switches (1-8)**

J601-1	BLK	Dedicated switch common (Ground)
J601-2	BLK-YEL	Not Used
J601-3	BLK-GRN	Not Used
J601-4	BLK-ORN	Not Used
J601-5	BLK-RED	Dedicated switch return 3 [Upper Right Flipper EOS]
J601-6	BLK-BRN	Dedicated switch return 2 [Right Flipper EOS]
J601-7	BLK-GRY	Dedicated switch return 1 [Left Flipper EOS]
J601-8	BLK-BLU	Not Used
J601-9	BLK-VIO	Not Used
J601-10	Key	

**J602 Dedicated Switches (9-16)**

J602-1	BLK	Dedicated switch common (Ground)
J602-2	YEL-GRY	Dedicated switch return 13 [Enter/Menu Button]
J602-3	YEL-GRN	Dedicated switch return 14 [Up/Volume+ Button]
J602-4	YEL-ORN	Dedicated switch return 12 [Right Flipper Switch, Upper]
J602-5	YEL-RED	Dedicated switch return 11 [Right Flipper Switch, Lower]
J602-6	YEL-BRN	Not Used
J602-7	YEL-BLK	Dedicated switch return 9 [Left Flipper Switch]
J602-8	YEL-BLU	Dedicated switch return 15 [Down/Volume- Button]
J602-9	Key	
J602-10	YEL-VIO	Dedicated switch return 16 [Escape/Service Credit Button]

**J603 Dedicated Switches (17-24)**

J603-1	BLK	Dedicated switch common (Ground)
J603-2	BLU-YEL	Dedicated switch return 21 [5th Coin Slot Switch]
J603-3	BLU-GRN	Dedicated switch return 22 [Ticket Mech Notch Switch]
J603-4	BLU-ORN	Dedicated switch return 20 [4th Coin Slot Switch]
J603-5	BLU-RED	Dedicated switch return 19 [Center Dollar Bill Acceptor]
J603-6	BLU-BRN	Dedicated switch return 18 [Right Coin Switch]
J603-7	BLU-BLK	Dedicated switch return 17 [Left Coin Switch]
J603-8	Key	
J603-9	BLU-GRY	Not Used
J603-10	BLU-VIO	Not Used

**J604 Dedicated Switches (25-32)**

J604-1	BLK	Dedicated switch common (Ground)
J604-2	VIO-YEL	Not Used
J604-3	VIO-GRN	Dedicated switch return 30 [Headphone Panel Volume Down]
J604-4	VIO-ORN	Not Used
J604-5	VIO-RED	Dedicated switch return 27 [Plumb Bob Tilt]
J604-6	VIO-BRN	Dedicated switch return 26 [Coin Door Open]
J604-7	Key	
J604-8	VIO-BLK	Dedicated switch return 25 [Start Button]
J604-9	VIO-BLU	Dedicated switch return 31 [Headphone Panel Volume Up]
J604-10	VIO-GRY	Dedicated switch return 32 [Headphone Jack Sense]

**J701 AC Power Input (High)**

J701-1	RED	49VAC from transformer (across RED lines)
J701-2	RED	49VAC from transformer (across RED lines)
J701-3	BLU	49VAC from transformer (across BLU lines)
J701-4	BLU	49VAC from transformer (across BLU lines)
J701-5	GRN	Chassis Ground
J701-6	GRN	Chassis Ground

**J702 AC Power Input (Low)**

J702-1	YEL	18VAC from transformer (across YEL lines)
J702-2	YEL	18VAC from transformer (across YEL lines)
J702-3	GRY	10VAC from transformer (across GRY lines)
J702-4	GRY	10VAC from transformer (across GRY lines)

**J800 CPU Communication**

Not Used (Not Populated)

**J802 RGB LED Control**

Not Used (Not Populated)

**J804 Flash Programming Access**

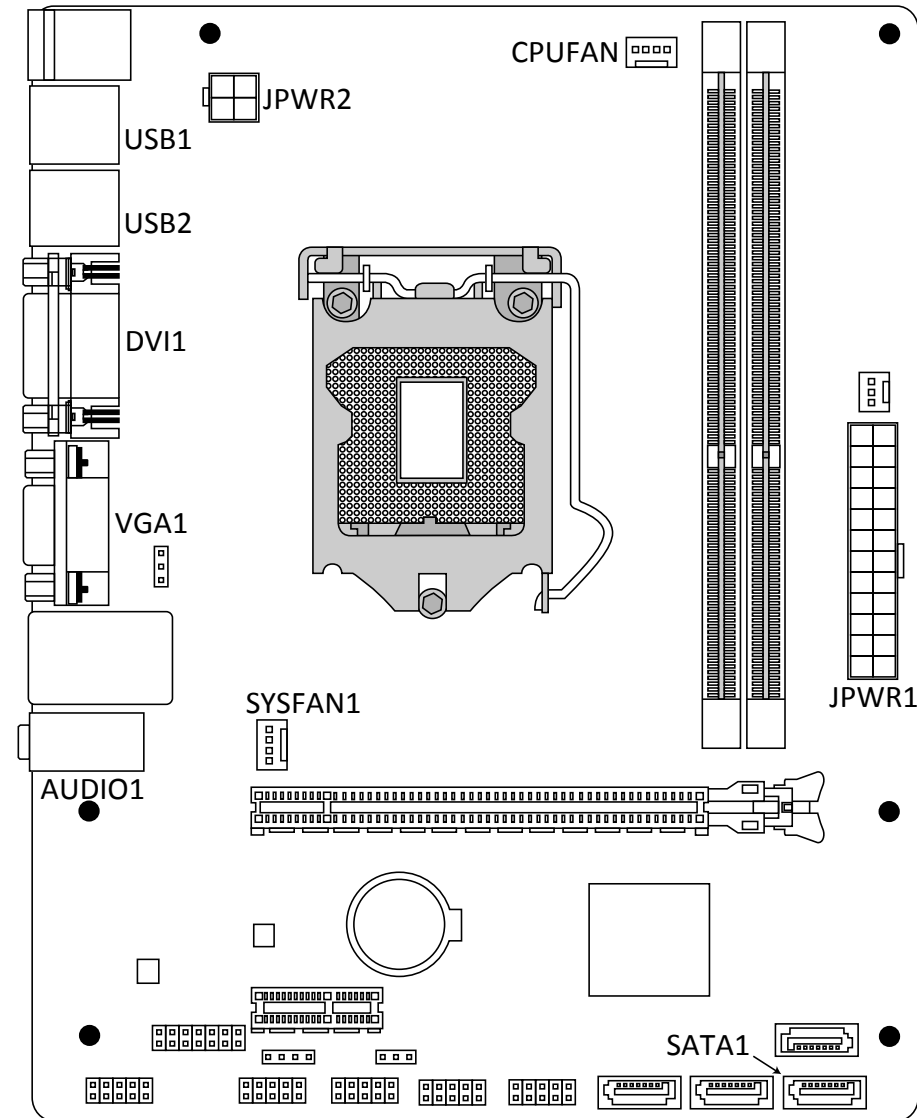
Not Used (Not Populated)

**JUSB CPU Communication (Switch Monitoring/Device Control)**

Mini USB cable to CPU Board USB connector

**PWR1 DC Power Input**

PWR1-1	YEL	+12VDC from Primary ATX Pwr Supply
PWR1-2	BLK	Ground from Primary ATX Pwr Supply
PWR1-3	BLK	Ground from Primary ATX Pwr Supply
PWR1-4	RED	+5VDC from Primary ATX Pwr Supply



**CPU Board, 15-000000-01**  
Connector Pin-outs

**JPWR2 DC Power Input**

JPWR2-1	BLK	Ground from Primary ATX Pwr Supply
JPWR2-2	BLK	Ground jumpered from pin 1
JPWR2-3	YEL-BLK	+12VDC from Primary ATX Pwr Supply
JPWR2-4	YEL-BLK	+12VDC jumpered from pin 3

**CPUFAN CPU Fan Power**

Primary connection for CPU fan (on CPU Board)

**JPWR1 DC Power Input**

JPWR1-1	ORN	+3.3VDC from Primary ATX Pwr Supply
JPWR1-2	ORN	+3.3VDC from Primary ATX Pwr Supply
JPWR1-3	BLK	Ground from Primary ATX Pwr Supply
JPWR1-4	RED	+5VDC from Primary ATX Pwr Supply
JPWR1-5	BLK	Ground from Primary ATX Pwr Supply
JPWR1-6	RED	+5VDC from Primary ATX Pwr Supply
JPWR1-7	BLK	Ground from Primary ATX Pwr Supply
JPWR1-8	GRY	Power OK signal from Primary ATX Pwr Supply
JPWR1-9	VIO	+5VDC Standby from Primary ATX Pwr Supply
JPWR1-10	YEL	+12VDC from Primary ATX Pwr Supply
JPWR1-11	ORN	+3.3VDC from Primary ATX Pwr Supply
JPWR1-12	BLU	-12VDC from Primary ATX Pwr Supply
JPWR1-13	BLK	Ground from Primary ATX Pwr Supply
JPWR1-14	GRN	Power Supply ON signal from Primary ATX Pwr Supply
JPWR1-15	BLK	Ground from Primary ATX Pwr Supply
JPWR1-16	BLK	Ground from Primary ATX Pwr Supply
JPWR1-17	BLK	Ground from Primary ATX Pwr Supply
JPWR1-18	Not Used	
JPWR1-19	RED	+5VDC from Primary ATX Pwr Supply
JPWR1-20	RED	+5VDC from Primary ATX Pwr Supply

**SATA1 SATA Data Input/Output**

SATA cable to solid state hard drive

**SYSFAN1 System Fan Power**

Secondary connection for CPU fan (on CPU Board)

**AUDIO1 Audio Output**

3.5mm audio cable to Sound Amplifier Board, J2

**VGA1 Video Output**

VGA cable to Smartphone LCD monitor

**DVI1 Video Output**

DVI cable to LCD monitor

**USB1 USB 2.0 Ports (2)**

Mini USB cable to I/O Board, JUSB  
USB extension cable to front of cabinet (inside coin door)

**USB2 USB 3.0 Ports (2)**

Dialed In Game Security Dongle  
Mini USB cable to BAG Controller Board, J101

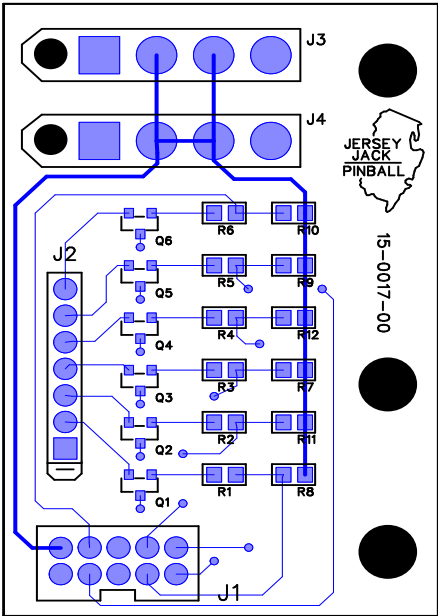
**Auxiliary Video Card Output**

VGA cable to Theater LCD monitor

# European Coin Door Board

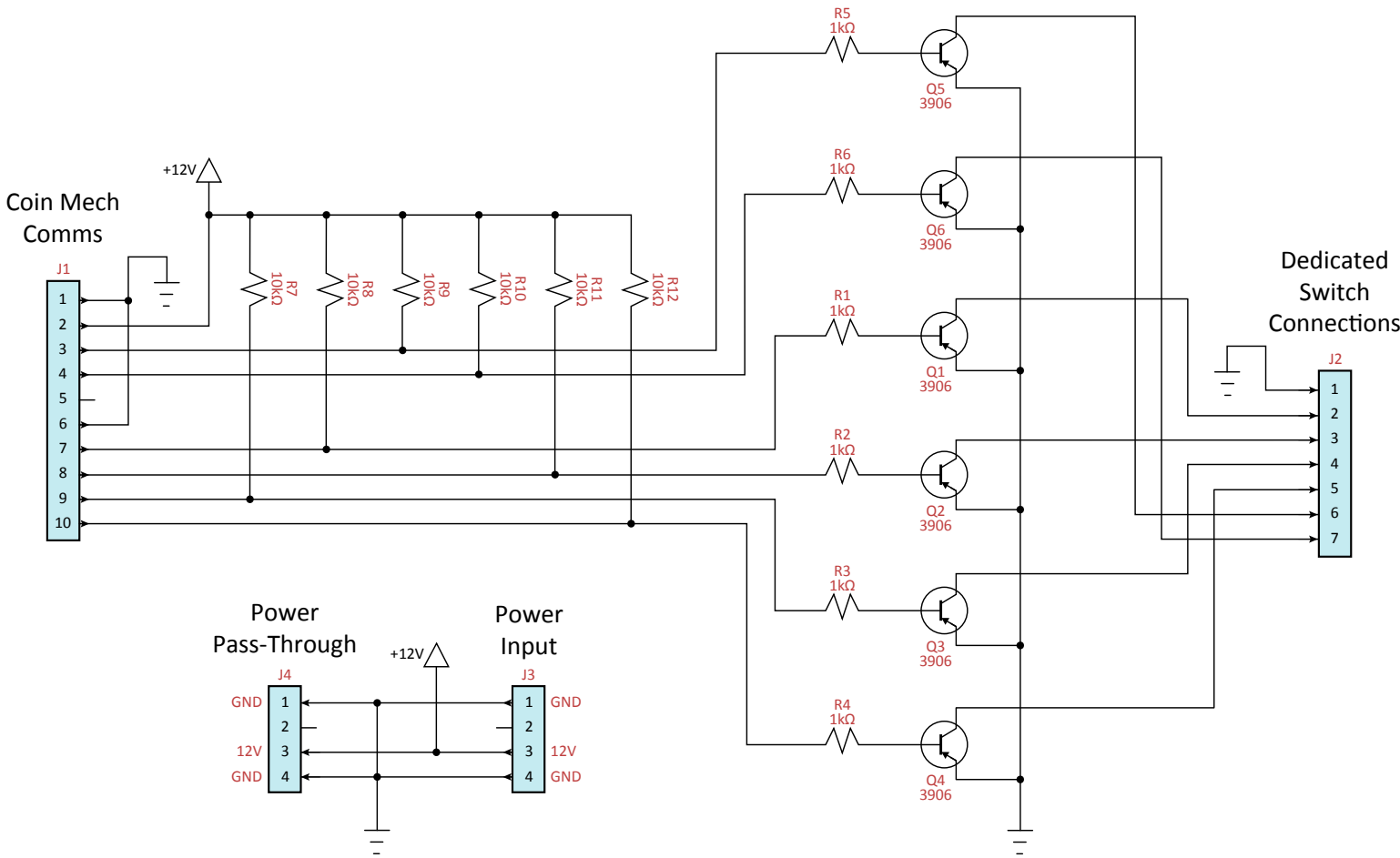
## 15-000017-00

Component(s)	Part Number	Description
Q1-Q6	131-0001-0S	Transistor, 3906, SOT-23 SMT, PNP
R1-R6	120-1K00-124	Resistor, 0805 SMT, 1kΩ, 0.125W, 5%
R7-R12	120-10K0-124	Resistor, 0805 SMT, 10kΩ, 0.125W, 5%
J1	31-2513-10	Connector Header, Male, 10-pin, 2 Rows, 2.54mm
J2	31-2504-07	Header, Male, 7-pin, 2.54mm
J3, J4	31-2512-04	Connector Header, Male, 4-pin, 5.03mm

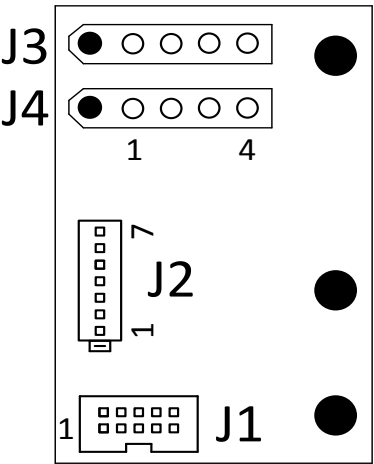


# European Coin Door Board

## 15-000017-00







European Coin Door Board  
15-000017-00  
Connector Pin-outs

**J1 Coin Mech Comms**

10-pin Ribbon cable	
J1-1	->
J1-2	->
J1-3	->
J1-4	-> Communications
J1-5	-> with coin
J1-6	-> mechanisms
J1-7	-> in coin door
J1-8	->
J1-9	->
J1-10	->

**J2 Dedicated Switch Connections**

J2-1	BLK	Dedicated switch common (Ground), I/O Board, J603-1
J2-2	BLU-BLK	Dedicated switch return 17 [Left Coin Switch], I/O Board, J603-7
J2-3	BLU-BRN	Dedicated switch return 18 [Right Coin Switch], I/O Board, J603-6
J2-4	BLU-RED	Dedicated switch return 19 [Center Dollar Bill Acceptor], I/O Board, J603-5
J2-5	BLU-ORN	Dedicated switch return 20 [4th Coin Slot Switch], I/O Board, J603-4
J2-6	BLU-YEL	Dedicated switch return 21 [5th Coin Slot Switch], I/O Board, J603-2
J2-7	BLU-GRN	Dedicated switch return 22 [Ticket Mech Notch Switch], I/O Board, J603-3

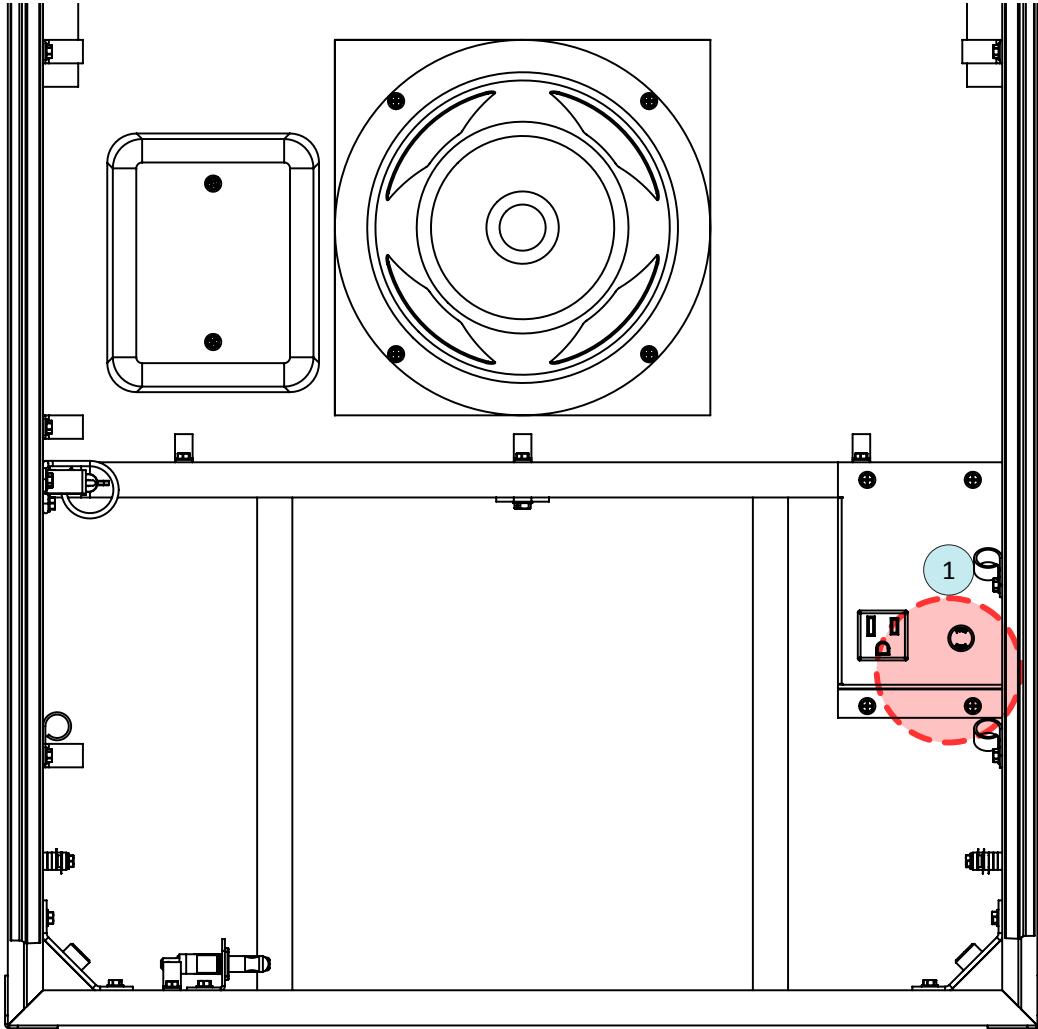
**J3 DC Power Input**

J3-1	BLK	Ground from Primary ATX Pwr Supply
J3-2	Not Used	
J3-3	YEL	+12VDC from Primary ATX Pwr Supply
J3-4	BLK	Ground from Primary ATX Pwr Supply

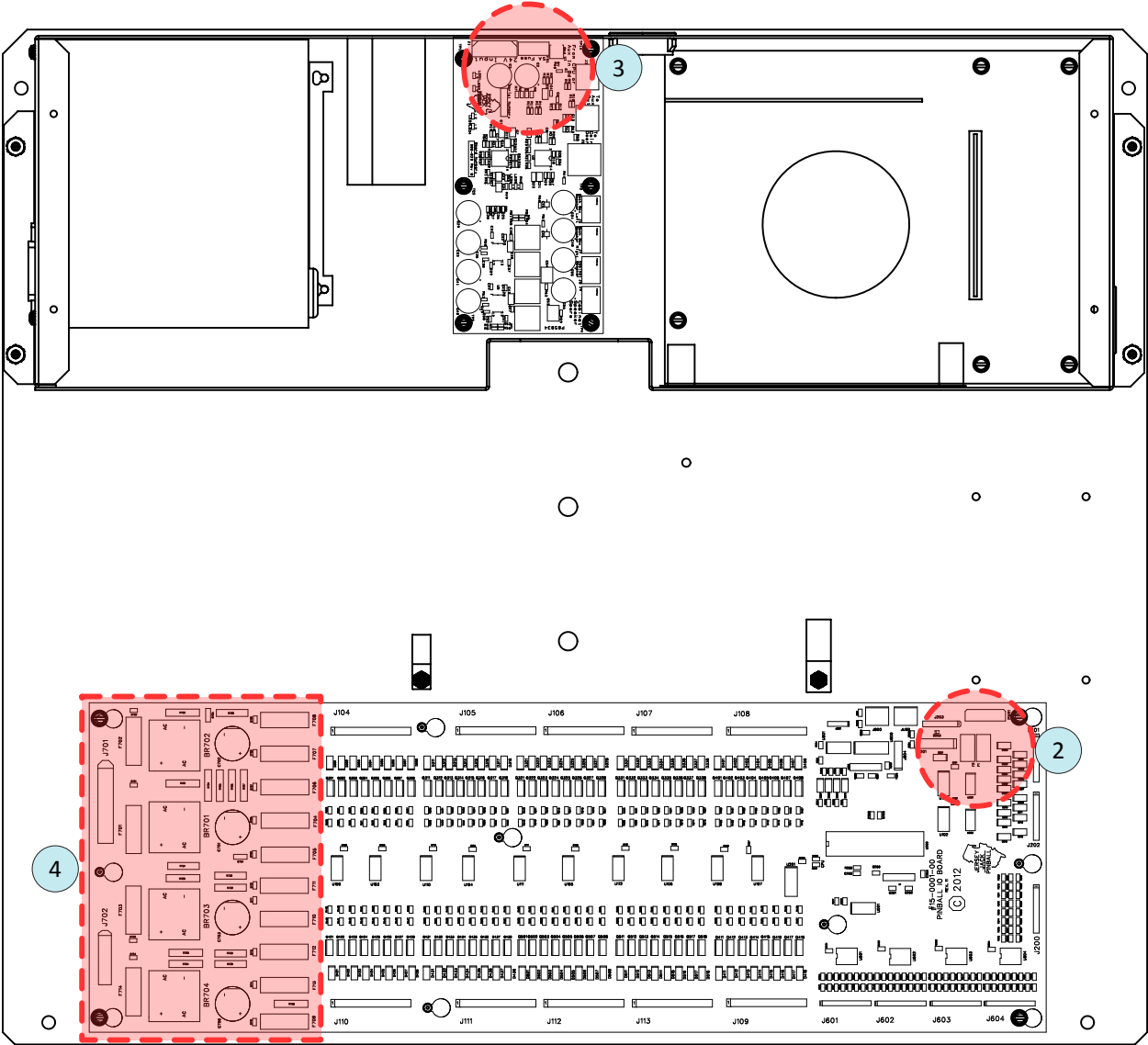
**J4 Power Pass-Through**

J4-1	BLK	Ground to coin door
J4-2	Not Used	
J4-3	YEL	+12VDC to coin door
J4-4	BLK	Ground to coin door

Fuse Locations



Bottom of Cabinet

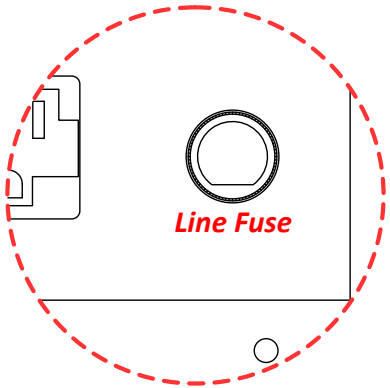


In Backbox

# Fuse Information

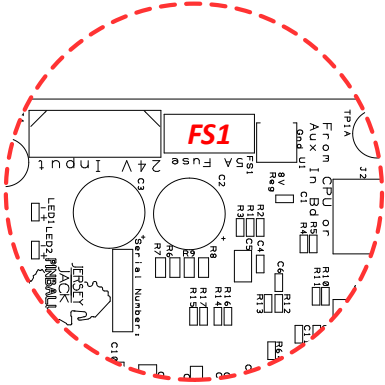
1

Power Box Assembly



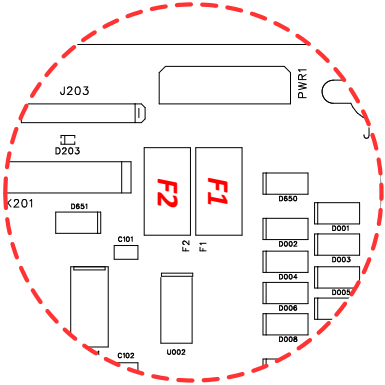
3

Sound Amplifier Board



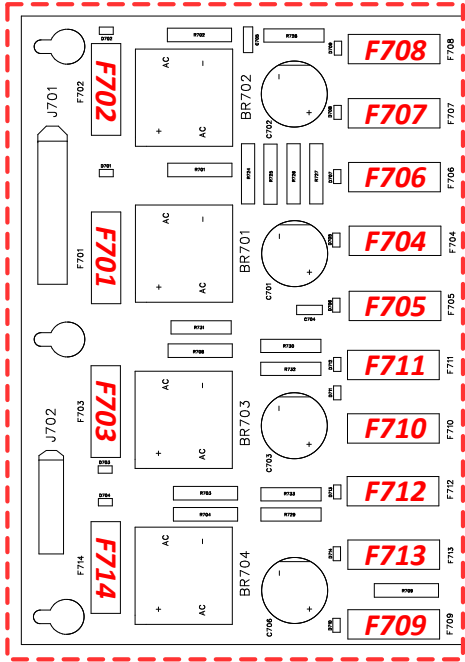
2

I/O Board



4

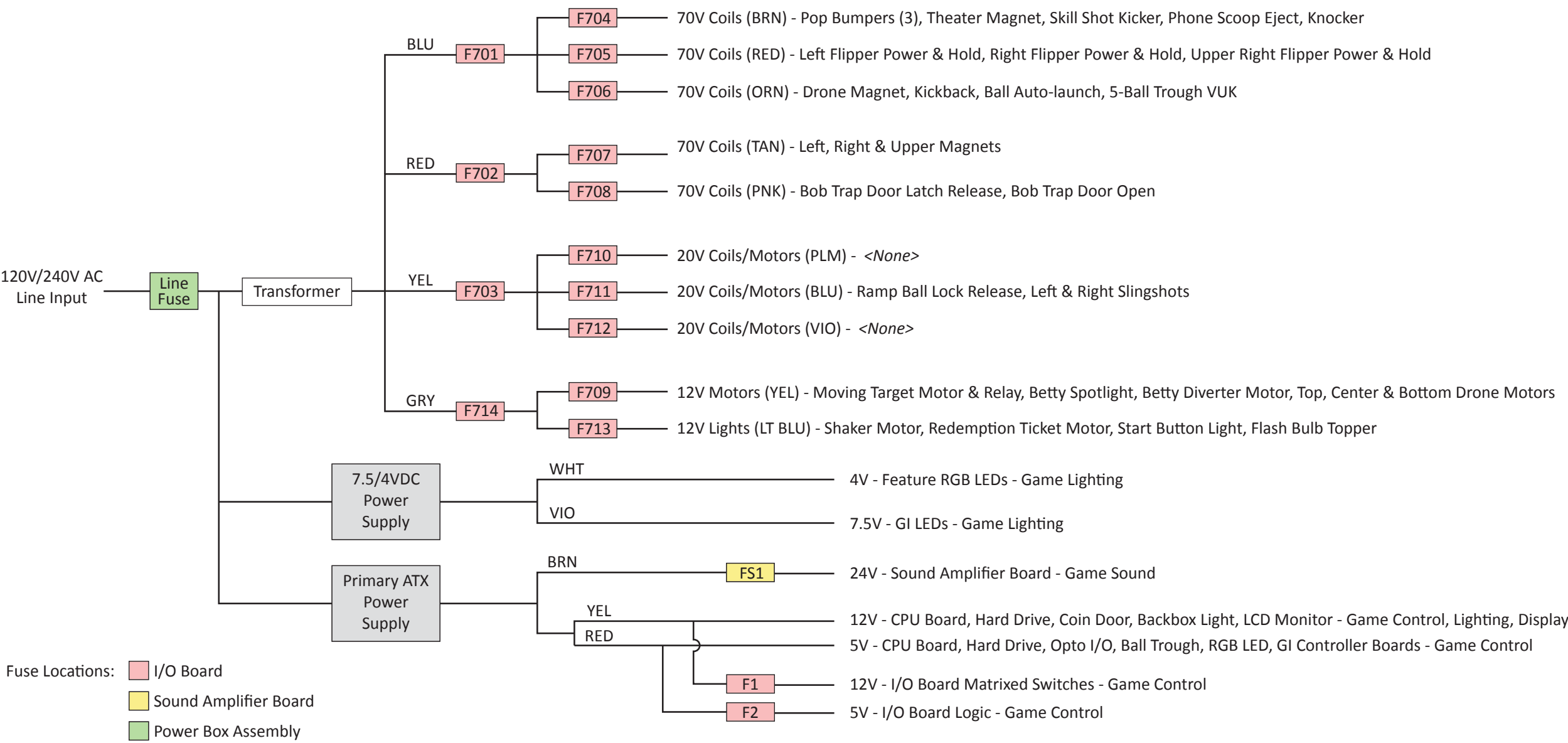
I/O Board



Fuse Identifier(s)	Description	Part Number
F701, F702	Fuse, Time Delay, 10A, 250V, 5mm x 20mm	170-000110-SM
F703, F706, F707	Fuse, Time Delay, 6.3A, 250V, 5mm x 20mm	170-000163-SM
F704, F705, F708	Fuse, Time Delay, 5A, 250V, 5mm x 20mm	170-000105-SM
F710, F711, F712, F714	Fuse, Time Delay, 4A, 250V, 5mm x 20mm	170-000104-SM
F709	Fuse, Time Delay, 3A, 250V, 5mm x 20mm	170-000103-SM
F713	Fuse, Time Delay, 2A, 250V, 5mm x 20mm	170-000102-SM

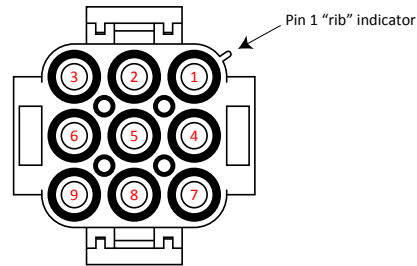
Fuse Identifier(s)	Description	Part Number
F1, F2	Fuse, Fast-Acting, 1A, 32V, Mini Blade	170-003201-FB
FS1	Fuse, Fast-Acting, 5A, 32V, Mini Blade	170-003205-SB
125V Line Fuse	Fuse, Slow Blow, 10A, 125V, 0.25" x 1.25", 3AG	170-000110-SR
250V Line Fuse	Fuse, Slow Blow, 5A, 250V, 0.25" x 1.25", 3AG	170-000205-SR

# Fused Power Stream

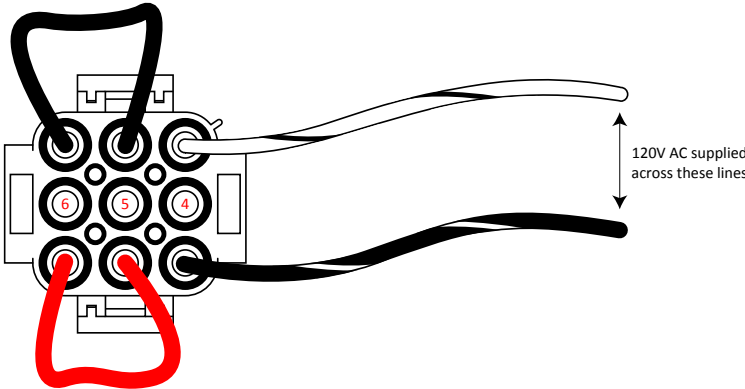


# Supply Voltage Conversion

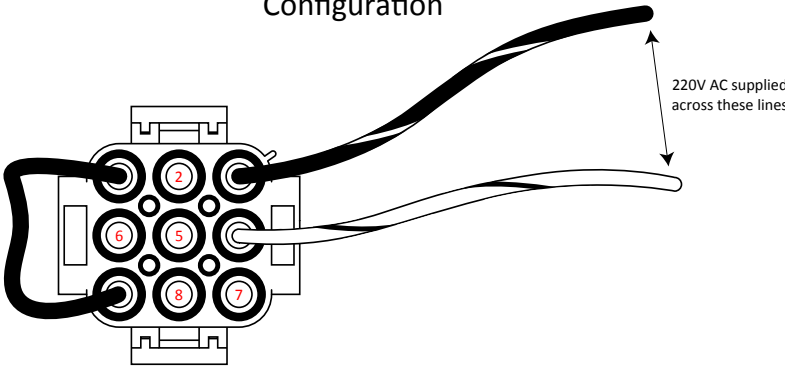
Voltage Conversion  
Connector Pin-out



Hobbit 120V AC  
Configuration



Hobbit 220V AC  
Configuration



If you need to convert your game to a different supply voltage than it was wired for at the factory, locate the 9-pin connector at the input of the transformer, in the bottom of the lower cabinet (shown opposite and in the green box on page D-111).

**Power the game down** and disconnect the 9-pin connector (it has locking tabs on each side). Looking at the back of the jumpered connector (the end with the wires protruding), locate the pin 1 “rib” indicator and orient the connector so that it is in the upper right hand corner, as shown opposite. The red numbers show pin numbers for the entire connector.

Look at the illustration for the desired configuration and compare it to the current configuration. Using a 0.084” pin extractor, remove all pins that require repositioning by pushing them out of the back of the connector, from the front. You can reuse existing wires as long as they were not damaged during the removal process. Fashion new, short jumper wires, as needed.

Using the appropriate illustration for reference, insert the jumper pins all the way into the connector, in the proper positions, from the back side, until they lock in place.

For a 120V supply voltage, connect the AC inputs across pins 1 & 7. Next, jumper pins 2 & 3 together with a short piece of black wire. Lastly, jumper pins 8 & 9 together with a short piece of orange wire.

For a 220V supply voltage, connect the AC inputs across pins 1 & 4. Then jumper pins 3 & 9 together with a short piece of black wire.

**Note:** Your Dialed In game makes use of switching, modular power supplies for the RGB LED & GI lighting systems (4V and 7.5V), the sound amplifier board (24V), the CPU board (5V & 12V ATX supply) and/or other game functions. These switching power supplies have voltage selection slide switches on their exterior panels that must be in the proper position (120V or 220V) before applying power to the game.





# Section E

## Game Service & Troubleshooting

*Under Construction!*





## E.1 Cabinet Sound Controls

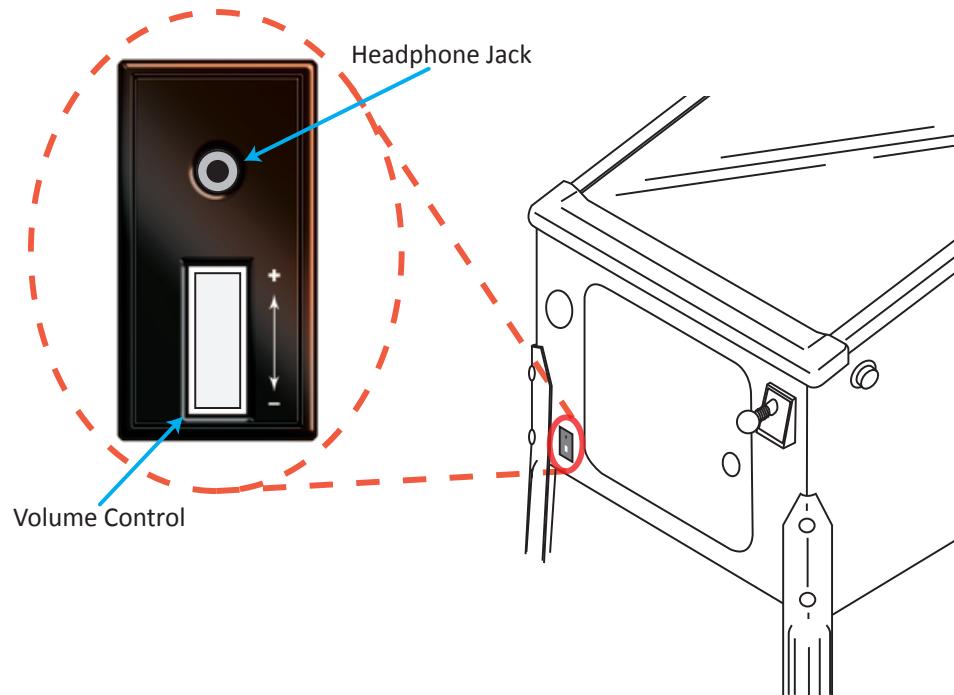


Figure E1. Cabinet sound controls.

The Dialed In sound system features a stereo headphone jack on the front of the cabinet, along with a volume control (circled in figure E1). To adjust the headphone levels, use the volume up/down rocker switch.

The cabinet rocker switch may also be used to adjust the overall volume of the game (through its speakers), provided the appropriate setting is enabled in the System Settings menu (see **System Settings** in Section B of this manual).

### **WARNING:**

Jersey Jack Pinball® encourages you to use the provided headphone jack responsibly. Different ear buds or headphones may produce different sound levels. **ALWAYS** begin with a low output level when connecting headphones and gradually increase the volume to a comfortable level. Pay close attention to and set strict limits for how long you expose your ears to high volume levels through headphones. **DO NOT** turn up the headphone volume on your Dialed In game in an attempt to block out noisy surroundings. Prolonged exposure to high volume levels can cause irreversible damage to your hearing! If you experience ringing in your ears or have difficulty understanding speech, stop listening and have your hearing tested immediately.

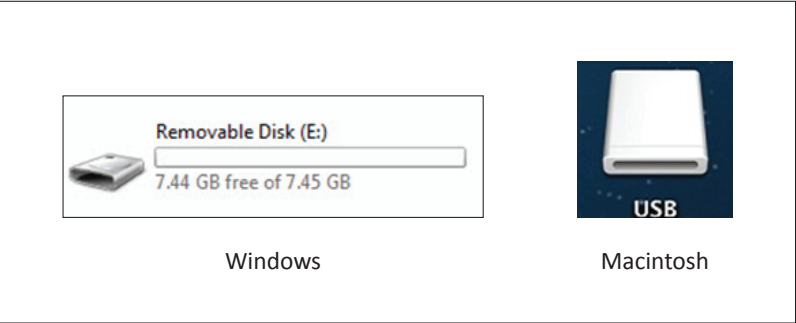


Figure E2. Icons for USB stick.

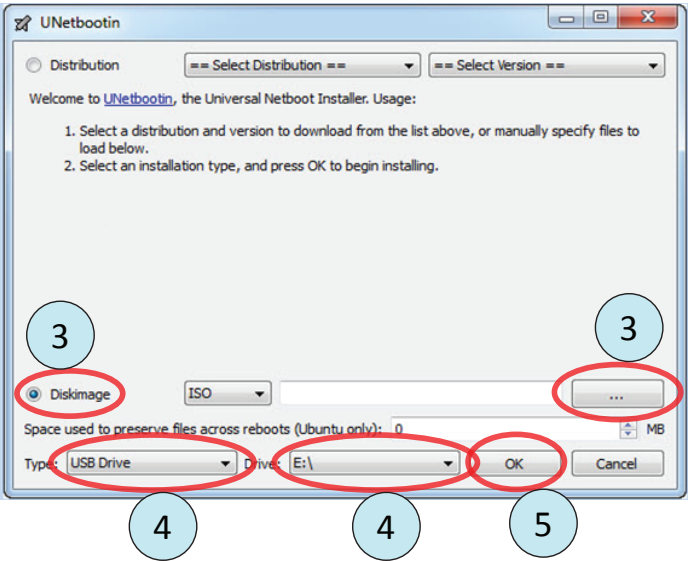


Figure E3. Initial UNETBOOTIN application window.

## E.2 Performing a Full Software Update

**Preparations:** Visit <http://www.jerseyjackpinball.com/support/> and download the latest full Dialed In software update. If you have not already done so, download the UNETBOOTIN utility for Windows or Macintosh.

### Tools Required:

Personal computer  
8 GB (min) USB memory stick

The full software update is also referred to as a factory reinstallation of game software. At times, a full software update will be the only method for updating your game, as critical, underlying operating system changes are often required.

- 1) Insert an 8 GB USB memory stick into an empty USB slot in your personal computer. **WARNING: All data on the USB stick will be erased during this process!** You should see a new **Removable Disk** under **My Computer** (Windows) or a new **Drive** on your **Desktop** (Macintosh), as shown in figure E2.
- 2) Run the UNETBOOTIN application. The UNETBOOTIN window (shown in figure E3) will open.
- 3) Select the **Disk Image** option, then click the '...' button (both are circled in figure E3). Locate and select the Dialed In ISO file you downloaded from the Jersey Jack Pinball® website.
- 4) Ensure that the **USB Drive** is selected under **Type** and the USB stick you inserted earlier ("E:" in this example) is selected under **Drive** (both are circled in figure E3).
- 5) Click the **OK** button to begin the copy/burn process, which will take approximately 10-20 minutes to complete (depending upon the speed of your computer). Again, all data on the USB stick will be erased during this process.

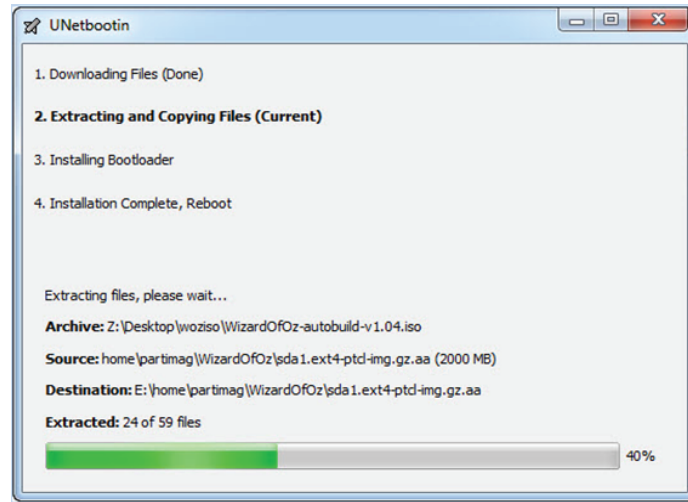


Figure E4. UNETBOOTIN copy/burn progress window.

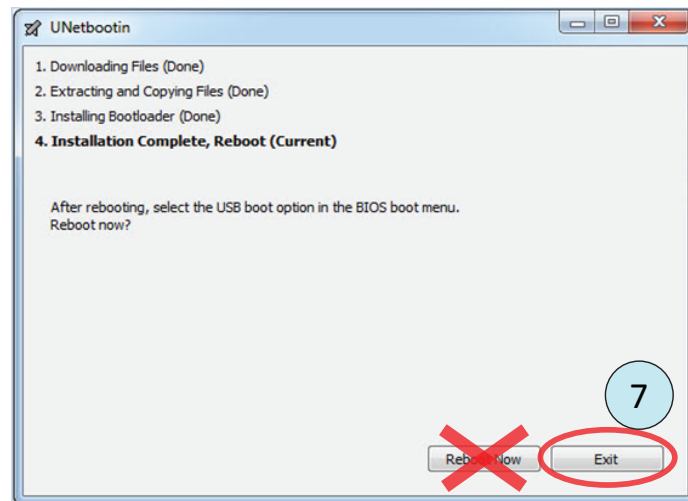


Figure E5. UNETBOOTIN installation complete window.

6) Throughout the ISO image copy/burn process, the window in figure E4 will be displayed and updated.

7) When the copy/burn process is complete, the window in figure E5 will be displayed. **WARNING: DO NOT CLICK THE 'Reboot Now' BUTTON!** Click the **Exit** button or the red X in the upper corner of the window.

8) Remove the USB stick from your personal computer. Power your game down and insert the USB stick you burned into the USB cable attached to the cabinet divider, behind the coin box, just inside your game's coin door.

9) Power up your game with the USB stick inserted. The game will auto-update with no user input; do not power the game down during the update process (which will take less than 5 minutes).

10) When the update is complete, the screen in figure E6 will be displayed on the game's LCD monitor. Power the game down, remove the update USB stick and power it on again. Your game will boot up running the new version of software (which can be verified by entering the Dialed In menu system - see Section B). Store your 8 GB USB stick in a safe place; it can be used to perform another full software update in the future (to this same software version or a newer one).

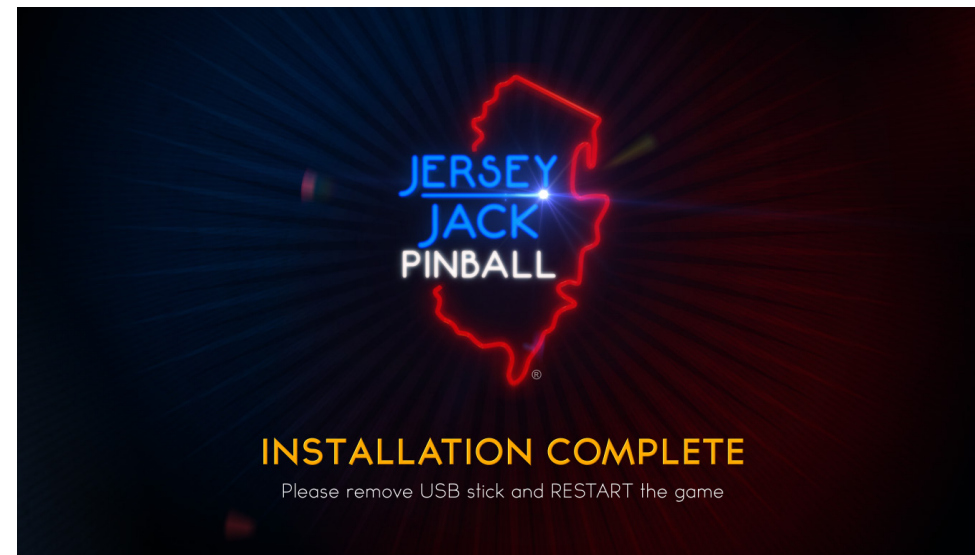


Figure E6. Update installation complete!





# Appendices

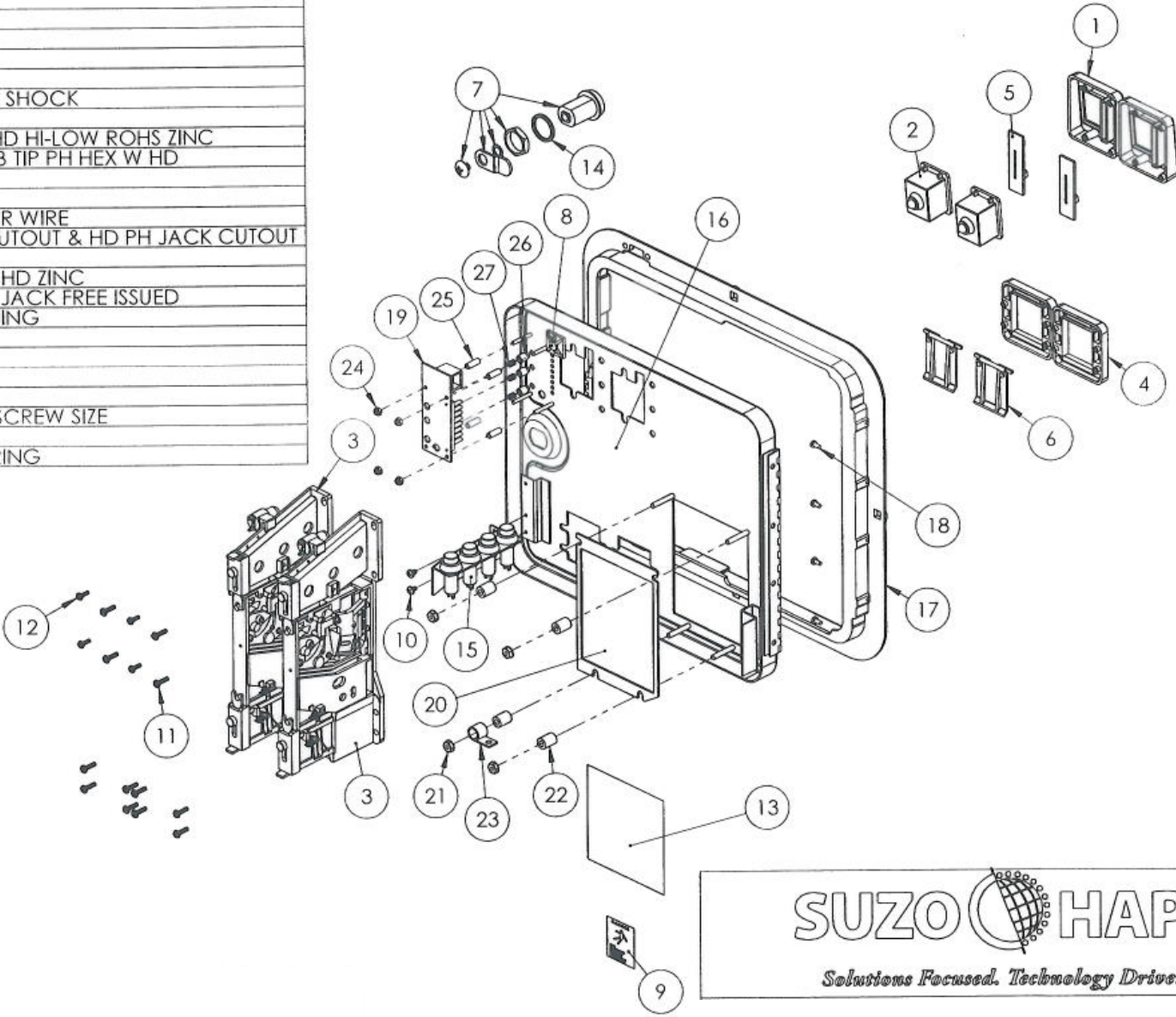




25¢ USA Coin Door Assembly  
JJP® PN 40-0001-00

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	42-0231-00D	ENTRY BEZEL, IL, PLASTIC
2	2	42-0517-05D	REJECT BUTTON ASSY. YELLOW W/HAPP .25 INSERT
3	2	42-8156-10D	MECH HOLDER .25 HAPP 6V555 LMP SW NEW DC TYPE LAMPHOLDER
4	2	42-0232-00D	RETURN BEZEL, IL, PLASTIC
5	2	42-1247-20	NEW COIN ENTRY RESTRICTOR WITH 2 TEETH
6	2	42-0119-00D	RETURN DOOR FLAP, PLASTIC
7	1	42-0641-00	LOCK ASSY 7/8 W/1 1/8" STRAIGHT CAM
8	1	43-0127-00	TIE PLATE
9	1	95-0278-00	DANGER LABEL FOR COIN DOORS ELECTRIC SHOCK
10	2	890-1015-02	SCREW #6x1/4"
11	12	48-1000-00	SCREW, F/BEZEL, LONG 6 X 12 HEX WASHER HD HI-LOW ROHS ZINC
12	4	43-1003-00	SCREW, SPL F/PLAST, #4 X .42/.39 SPL HI THD, B TIP PH HEX W HD
13	1	890-1060-00	LABEL UPSTACKER INSTRUCTIONS
14	1	42-0254-02	LOCKWASHER, F/LOCK 3/4" INTERNAL
15	1	96-0436-04	HARNESS ASSY W/DIODE, 4 BUTTONS, JUMPER WIRE
16	1	42-0612-00	PINBALL COIN DOOR W/CREDIT CRD VAL CUTOUT & HD PH JACK CUTOUT
17	1	891-1701-016	FRAME STD DR11 S2000 NOTCH BLK
18	4	890-1002-00	SCREW F/ HINGE M3X6MM .5 PITCH PH PAN HD ZINC
19	1	FI-0088-00	COIN DOOR VOL PCB W/LIGHT PIPE JERSEY JACK FREE ISSUED
20	1	891-0100-4016	BLANKING PLATE DBV (BLACK) LARGE OPENING
21	4	42-0082-00	NUT, KEPS 8-32
22	4	890-1051-00	SPACER
23	1	03-7655-6	CABLE CLAMP, 3/8" DIA.
24	4	43-1322-00	NUT NYLOCK, 4-40 HEX
25	4	43-0720-00	NYLON SPACER 3/16" OD, 1/2" LENGTH, #4 SCREW SIZE
26	3	43-0709-00	COIN DOOR PUSH BUTTON ACTUATOR
27	3	43-0714-00	COIN DOOR ACTUATOR COMPRESSION SPRING

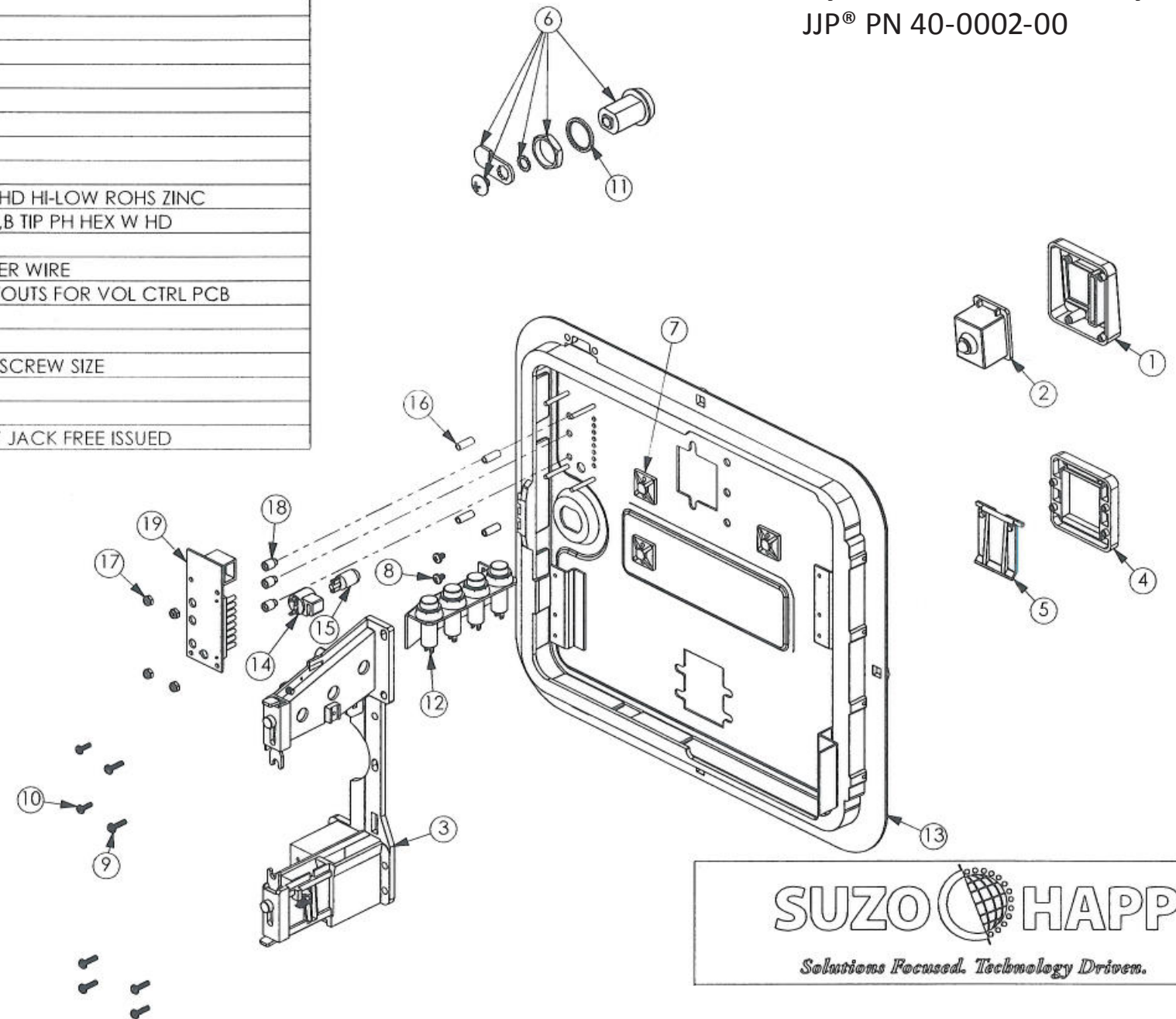
NOTE: Suzo-Happ parts and numbers are listed above.



NOTES:  
ITEMS NOT SHOWN:  
90-1013-00 (TIE WRAP), QTY 3  
S-11136 CABLE TIE QTY 1  
INS-0024 (INSTRUCTIONS ULT \$.25 US COIN MECHANISM), QTY 1  
036-5509-25 HARNESS, PIN DOOR 2 SLOT & VAL W/SLAM CONNECTOR, QTY 1  
TEST COIN DOOR USING TESTER # HT-126, HT-127

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	42-0231-00D	ENTRY BEZEL, IL, PLASTIC
2	1	42-0930-00	REJECT BT ASSY YL W/UNIV FINGER LOGO
3	1	42-7355-00D	MECH HOLDER
4	1	42-0232-00D	RETURN BEZEL, IL, PLASTIC
5	1	42-0119-00D	RETURN DOOR FLAP, PLASTIC
6	1	42-0641-00	LOCK ASSY 7/8 W/1 1/8" STRAIGHT CAM
7	3	43-0127-00	TIE PLATE
8	2	890-1015-02	SCREW #6x1/4"
9	6	48-1000-00	SCREW, F/BEZEL, LONG 6 X 12 HEX WASHER HD HI-LOW ROHS ZINC
10	2	43-1003-00	SCREW, SPL F/PLAST, #4 X .42/.39 SPL HI THD, B TIP PH HEX W HD
11	1	42-0254-02	LOCKWASHER, F/LOCK 3/4" INTERNAL
12	1	96-0436-04	HARNESS ASSY W/DIODE, 4 BUTTONS, JUMPER WIRE
13	1	42-0693-00	WELLS DOOR & FRAME ASY PINBALL W/CUTOUTS FOR VOL CTRL PCB
14	1	42-0351-00D	LAMP HOLDER
15	1	91-1319-00	LAMP #555 6.3V
16	4	43-0720-00	NYLON SPACER 3/16" OD, 1/2" LENGTH, #4 SCREW SIZE
17	4	43-1322-00	NUT NYLOCK, 4-40 HEX
18	3	43-0709-00	COIN DOOR PUSH BUTTON ACTUATOR
19	1	FI-0088-00	COIN DOOR VOL PCB W/LIGHT PIPE JERSEY JACK FREE ISSUED

NOTE: Suzo-Happ parts and numbers are listed above.



## Euro-Style Coin Door Assembly

JJP® PN 40-0002-00



NOTE:  
ITEMS NOT SHOWN:  
90-1013-00 - TIE WRAP - 3,  
S-11136 CABLE TIE 5" LENGTH .14WIDTH 40LB NATURAL



# Acronyms & Abbreviations

A	Ampere	FH	Flat Head	MS	Machine Screw	SEMS	Integral Star Lock Washer
AC	Alternating Current	F-M	Female - Male	Mtg	Mounting	SMD	Surface-Mounted Device
Adj	Adjustable	Fm+	Fast-mode Plus	N/A	Not Applicable	SMS	Sheet Metal Screw
Assy	Assembly	ft	Feet	nF	Nanofarad	SMT	Surface Mount Technology
Aux	Auxiliary	ga	Gauge	nm	Nanometer	SOIC-	Small-Outline Integrated Circuit (IC Package)
BAG	Bus, Accelerometer & GI	GB	Gigabyte	NPN	Transistor Type	SPDT	Single Pole, Double Throw
BB	Backbox	GI	General Illumination	NS	Not Specified	SPST	Single Pole, Single Throw
Bd	Board	GND	Ground	ns	Nanosecond	Std	Standard Edition
Bidir	Bidirectional	GRN	Green	Ω	Ohm	STP	Shielded Twisted Pair
BLK	Black	GRY	Gray	OD	Outside Diameter	Sync	Synchronous
BLU	Blue	HWH	Hex Washer Head	OLED	Organic Light-Emitting Diode	TAN	Tan
Brkt	Bracket	I2C	Inter-Integrated Circuit	ORN	Orange	Tgt	Target
BRN	Brown	IC	Integrated Circuit	PCB	Printed Circuit Board	TH	Truss Head
CAT5	Category 5 Ethernet Cable	I/O	Input/Output	pcs	Pieces	TO-	Transistor Outline (Transistor Package)
CCW	Counterclockwise	IR	Infrared	PEM	Brand Name, Threaded Insert	TVS	Transient Voltage Suppressor
Ch	Channel	ISO	International Organization for Standardization	pF	Picofarad	TX	Transmitter
CMOS	Complementary Metal-Oxide Semiconductor	J	Joule	PFH	Phillips Flat Head	μF	Microfarad
Col	Column	JJP®	Jersey Jack Pinball®	PLM	Plum	UFm	Ultra Fast-mode
Const	Constant	kΩ	Kilo Ohm	PPH	Phillips Pan Head	USB	Universal Serial Bus
CP	Cup Point	kHz	Kilohertz	PPM	Parts Per Million	V	Volt
CPU	Central Processing Unit	LAN	local area network	PF	Playfield	VGA	Video Graphics Array
CS	Cap Screw	LCD	Liquid Crystal Display	PNK	Pink	VIO	Violet
CW	Clockwise	LE	Limited Edition	PN	Part Number	VUK	Vertical Up-Kicker
DBA	Dollar Bill Acceptor	LED	Light-Emitting Diode	pos	Position	W	Watt
DC	Direct Current	Lg	Large	Qty	Quantity	WS	Wood Screw
Diam	Diameter	LT BLU	Light Blue	RCA	Brand Name Connector	w/	With
DIP	Dual Inline Package	LVDS	Low-Voltage, Differential Signaling	RED	Red	WHT	White
Diff	Differential	mA	Milliampere	rev	Revision	XCVR	Transceiver
DPDT	Double Pole, Double Throw	M-F	Male - Female	RF	Radio Frequency	YEL	Yellow
Drvr	Driver	MHz	Megahertz	RGB	Red, Green, Blue	"	Inch
DVI	Digital Video Interface	MLCC	Multi-layer Ceramic Capacitor	Rnd	Round		
ea	Each	MOV	Metal Oxide Varistor	Rt	Right		
Elect	Electrolytic	M-M	Male - Male	RX	Receiver		
EOS	End of Stroke	mm	Millimeter	SATA	Serial Advanced Technology Attachment		
F-F	Female - Female	MOSFET	Metal-Oxide Semiconductor Field-Effect Transistor	SD	Secure Digital		
FCC	Federal Communications Commission			SH	Socket Head		



# Jersey Jack Pinball®

## Limited Manufacturer's Warranty



The manufacturer of this Pinball Machine, Jersey Jack Pinball® (“JJP®”), warrants to the holder of a valid proof of purchase (“Purchaser” or “You”) that the Pinball Machine (“Machine” or “Product”) is free from defects in material and workmanship, pursuant to the following terms and conditions, when installed and used normally and in accordance with operation instructions.

### What does the Limited Warranty cover - and for how long?

1. The JJP® “Bumper to Post” Limited Warranty covers every part in your new Jersey Jack Pinball® Machine for a period of 30 days from the date of delivery of the Machine to its original Purchaser.
2. In addition, the JJP® Sound Board, I/O Driver Board, CPU, 0.96” OLED Monitor, 27” LCD Monitor and RGB LED (Light) Boards are covered for a period of one year from the date of delivery of the Machine to its original Purchaser. If the Machine is used for commercial purposes (any use other than in-home use), the JJP® Sound Board, I/O Driver Board, CPU, 0.96” OLED Monitor, and 27” LCD Monitor and RGB LED (Light) Boards are covered for a period of 6 months from the date of delivery of the Machine to its original Purchaser.

**Who is entitled to Warranty coverage?** The original Purchaser.

**What will JJP® do?** JJP® will repair or replace any covered part at no charge for the part, exclusive of shipping and handling charges or any labor to install the part.

**What is not covered?** The Limited Warranty does not cover any labor or service calls necessary to replace any part which is a result of improper installation, shipping or handling charges, negligence, misuse, abuse, alteration, modification, rust of any kind, damage caused by electrical surge or by intrusion of any liquid, repairs by persons other than our authorized service personnel, fire, theft, acts of God (such as a flood), and/or improper electrical connection.

**What must I do?** In order to be eligible for coverage you must register your JJP® Machine within 5 days of delivery on-line at [www.JerseyJackPinball.com](http://www.JerseyJackPinball.com), by emailing [Service@JerseyJackPinball.com](mailto:Service@JerseyJackPinball.com) or by calling 732-364-9900.

If a covered part requires repair or replacement, email us at [Service@JerseyJackPinball.com](mailto:Service@JerseyJackPinball.com) or open a service ticket at the Jersey Jack Pinball® website and enter a brief, written description of the problem. You may also call us at 732-364-9900; however all warranty claims must be in writing. For repair or replacement, the covered part must be shipped, prepaid, to us or to an authorized JJP® distributor. The repaired, or replacement part, will be returned to You upon warranty verification. In the event that You want a replacement part in advance of returning the original part to JJP®, you must order the part from your authorized distributor and advance the retail cost for the replacement part. The original part must be returned within 21 days for warranty verification. Upon verification of warranty, the amount paid for the advance replacement part will be fully refunded.

**State Law Rights:** This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

**Exclusive Agreement:** This limited warranty is the complete and exclusive agreement between You and JJP®. It supersedes all other written or oral communications related to this Product. JJP® provides no other warranties for this Product. The warranty exclusively describes all of JJP®’s responsibilities regarding the Product. There are no other express warranties. No one is authorized to make modifications to this limited warranty and you should not rely on any such modification.

**Limitations:** Implied warranties, including those of fitness for a particular purpose and merchantability (an unwritten warranty that the Product is fit for ordinary use) are excluded. Some states do not allow the exclusion or limitation of implied warranties, so the above limitation or exclusion may not apply to you.

In no event shall JJP® be liable for any indirect, special, incidental, consequential, or similar damages (including, but not limited to, lost profits or revenue, inability to use the Product, or other associated equipment, the cost of substitute equipment, and claims by third parties) resulting from the use of this Product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.



WARNINGS & NOTICES

**WARNING**  
**FOR SAFETY AND RELIABILITY**, substitute parts and equipment modifications are not recommended. Use of non-Jersey Jack Pinball® parts or modifications of game circuitry, may adversely affect game play, or may cause injuries. Substitute parts or equipment modifications may void FCC/Canada Type Acceptance.

**PROLONGED EXPOSURE to high volume levels through the** coin door headphone jack can lead to irreversible hearing loss. See **Section E** of this manual for more information.

**BECAUSE THIS GAME IS PROTECTED** by Federal copyright, trademark and patent laws, unauthorized game conversions may be illegal under Federal law.

**THIS 'CONVERSION' PRINCIPLE ALSO APPLIES** to unauthorized facsimiles of Jersey Jack Pinball® equipment, logos, designs, publications, assemblies and games (or game feature not deemed to be public domain), whether manufactured with Jersey Jack Pinball® components or not.

**IF THE LINE CORD IS DAMAGED**, it must be replaced with a cord provided by the game manufacturer (or an equivalent) in order to avoid a hazard.

**Notice**  
INVISIGLASS® is a registered trademark of Jersey Jack Pinball®. The entire contents of this manual are ©2017 Jersey Jack Pinball®, manufacturers of Jersey Jack Pinball® Amusement Games. All rights reserved.

**WARNING**  
**NOTE:** This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

**RF Interference Notice**  
CABLE HARNESS PLACEMENTS and ground strap routing on this game have been designed to keep RF radiation and conduction within levels accepted by the FCC Rules.

TO MAINTAIN THESE LEVELS, reposition harnesses and reconnect ground straps to their original placements, if they become disconnected during maintenance.

**FCC/CANADA STICKER.** Check the back of your game to verify that an FCC/Canada-certification sticker was attached to your game at the factory. All Games that leave the Jersey Jack Pinball® plant have been tested and found to comply with FCC/Canada Rules. Because the sticker is proof of this fact, legal repercussions to the owner and distributor may result if the sticker is missing. If you receive a game that has no FCC/Canada sticker, call Jersey Jack Pinball® for advice or write us a note on your Game Registration Card. Be sure that the card bears your game's serial number.

<b>FOR SERVICE...</b>		<b>Jersey Jack Pinball®</b>
CALL your authorized	or VISIT our support site:	1645 Oak Street
Jersey Jack Pinball® Distributor	<a href="http://support.jerseyjackpinball.com">http://support.jerseyjackpinball.com</a>	Lakewood, NJ 08701

**CAUTION:** Transport this game **ONLY** with the hinged backbox **DOWN!**